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NO PLACE FOR RAIN



THE western world has nearly come to the conclusion that hell is probably unpleasant. At least the previews of the last fifteen years have shaken us out of a smug dismissal of the possibilities of hell. No amount of evidence can move any man to an admittance of the certainties of hell, since hell, like heaven, is a supernatural thing that must be believed until the doors swing open for the investigator who demands first hand evidence. Still, the previews are as convincing as intrinsic evidence can be in such a matter. For in these past fifteen years whole nations have adopted the habits of hell as first principles of personal and national activities. Injustice, and its inevitable climax of hatred of God, have been paraded with pride and praised for their obvious and immediate successes.

Until recently, we have taken injustice rather lightly, perhaps because we have thought of it in terms of disparate acts of burglary or business acumen. When it appeared on the stage of the world as a fixed habit, a vice, men found it hard to

believe their eyes; surely, such stark evil could not walk nakedly through the lives of men shamelessly, without embarrassment, with no attempt at secrecy. It took the unmistakable evidence of concentration camps, murder kitchens, dying testimony of hulks of battered eyewitnesses who testified with their bodies as well as their words, to convince the men of the West that the foulness of this vice was poisoning the world that had been Christian. But this, as we learned in the slow way of incredulous men, was only a beginning; the kindergarten level of the science of evil was initiated in Nazi Germany. The graduate level was reached only after the world writhed in agony from its contacts with the tots who had learned so quickly and so eagerly. Now the western world is slowly coming to realize that the masters have taken over behind the Iron Curtain, with no intention of limiting their fundamental principles of injustice and hatred to the territory already besmirched by the soot from the fires of hell.

We are shocked by flagrant injustice, superabundant even for vicious goals. Political slavery, police terrorism, mock trials cluttered with the harvest of torture, murder, imprisonment, flagrant and barefaced falsehood, nations disappearing under our very eyes and human beings by the thousands snatched into a mysteriously evil oblivion; these things have shaken us badly. Such extremes go beyond any assignable purpose except sheer malice. The hand we lift in protest is, we notice, trembling; for such loathsomeness does more than turn the stomach of a man. We are not yet looking through the open doors of hell; but the preview is almost too much for us.

It is a badly needed comfort to look about the part of the world still left to us and breathe its air deeply. Here, thank God, things are different. Every detail of the comparison of the two worlds is flattering, and we begin to think of ourselves as angels of light girding for battle with the powers of darkness. Almost, we thank God that we are not as the rest of men. Here is a battle of absolute fundamentals, a basic opposition of love and justice to hatred and injustice; and we are on the side of

the angels. So we begin to muster our forces, particularly our moral forces since this is ultimately a moral battle.

At this point our vigorous righteousness begins to ooze away. Not that we are any less revolted by the reign of the vice of injustice; but we are bewildered by the paradoxical condition of the world of the West. That flattering uprightness, so long considered a kind of inheritance, fares badly when we bring it out of the shadow of assumptions into the pitiless glare of close scrutiny. Perhaps our mustering of forces will have to be much more than a call to arms.

Certainly our most superficial glance reveals a plethora of unjust acts. But, then, every age has had its share of individual, isolated, sporadic injustices. Even though our age may have a somewhat more abundant supply of these, this is reassuringly balanced by the lack of evidence of any wide-spread infiltration of the vice of justice. Perhaps we are guilty of some diabolical mistreatment of others, but at least we do not go about such things with a devilish malice; the very next day may find us crowding the hours with angelic ministrations of thoughtfulness and mercy. Well, then, where is the difficulty? On one side you have a world plague-ridden by the vice of injustice; on the other, an absence of that vice, as far as the evidence can show such freedom from vice. The difficulty lies in the fact that there is also practically no evidence of the presence of the virtue of justice!

We are brought up short by the astounding suspicion that perhaps we are living in a society that subsists without either the vice of injustice or the virtue of justice, a kind of social vacuum which is in itself a contradiction in terms. The vice of injustice makes a desert of society; the virtue of justice is the green of the valleys. But here we have some anomalous thing that is neither life nor death, desert nor fertile land, a society peopled by neither the just nor the unjust. If the Lord makes His rain to fall on both the just and the unjust, then here is a land in which there is no place for rain! Perhaps this astounding suspicion will give way before a fuller mustering of facts. But it is unsettling enough to demand thorough investigation. If, as

a result of such an investigation, the incredible social vacuum should prove not only worthy of credence but inescapably a fact, if the suspicion should be confirmed, or any part of the suspicion, then the logical consequences of it must be looked at squarely. That may be as unsettling as the ominous miasma of evil that slowly spreads from the East; but in no other way can the radical and immediate remedies be found. Without such remedies, it is futile to talk in terms of mustering forces against injustice from a land barren of justice.

For our consolation, let us first attempt to establish our freedom, at least on a national scale, from the vice of injustice. Let it be admitted at once that this does not imply a denial of, or a blindness to, the unjust actions of the men of our time and our country. On the contrary, an open confrontation of the facts of injustice will facilitate our understanding of the gratifying fact that the vice of injustice has not as yet made its domicile among us.

The men of the West are undoubtedly guilty of injustice. It may be argued, and to a considerable degree of probability proved, that injustice has had a flourishing time of it since the last war. That, however, is not particularly relevant to our problem. We are interested in seeing the fact of injustice and the bearing of that fact upon the existence or non-existence of the vice of injustice. There is among us, as there has always been among men, a steady output of the sweaty, vulgar type of injustice from the labors of men who roll up their sleeves and go at injustice as a means of livelihood. These men are the professed criminals; their unjust acts are the openly criminal offenses that keep prisons crowded: acts of murder, of theft, of assault, of rape, kidnaping, and so on. These are the open enemies of society, the outcasts; they are not, of course, ever admitted to the drawing rooms of the better families, let alone invited for a quiet week-end. Then there are the increasing injustices perpetrated by men with no desire to risk the prison exile of the criminal but with every desire to share the quick

returns offered by unjust methods. They are sure they do not belong in society but are even more sure they do not want to be cast out of it. So they pull and tug to get their hulking dishonesty into the garments of respectability, never looking comfortable, but stubbornly insisting that they are within the law, or at least not as yet apprehended. Their dishonest products are such things as the flourishing trick of charging a man for his need as well as for what he purchases, the fake "bonus" plague which demands totally unauthorized extra payment for railroad tickets, hotel rooms, apartments, houses, automobiles; and finally for food, clothes, cigarettes, in wide open black-marketing. This class will include all the gougers who prey on the helplessness of men and the weakness of law whether the gouging be effected in sharp business deals, shady legal tricks, or the "honest grafting" through political, economic, or labor offices. It is, you see, a shade safer and somewhat less violent than the racketeers' high-priced "protection"; but not one whit less unjust.

To complete the story of actual injustices we must face the perfumed brutalities which have become delicately respectable. These are now taken for granted in the most select circles; easily topics of general conversation, and frequently enough matters of boast or of congratulation. For the most part, these injustices have crashed the gate to social acceptance by changing their names and being patient enough to let us get used to their presence. Take, for example, respectable murder. Instead of hacking a child to pieces we perform a craniotomy; in place of abortion, read therapeutic abortion; rather than kill the ill or aged, practise euthanasia. The foreign words are so confusingly long and so pleasantly melodious; not nearly so shocking as the vulgarly clear words like stab, hack, kill. In this way, the marriage contract has been eliminated; monogamy has been replaced by polygamy and polyandry in the best families. Mutilation of women for reasons other than disease is routine in hospital practice where religion does not raise a protest, while mutilation of men has gone to the point of legal approval on a wide scale. But be sure you call these things by

names like hysterectomy and sterilization; we must have melody with our injustice. The list of respectable injustices grows year by year; the hardworking professional criminal may eventually find it necessary to appeal to the police for protection of his field of labor, but then by that time perhaps even the police will have gone respectably unjust. At any rate, there can be no challenge to the presence of unjust acts in our time.

Yet, for the most part, these things do not add up to the vice of injustice in any one individual. The vice of injustice is not easily come at; and its characteristic mark is to be found in the pleasure it gives to the perpetrator of the unjust act. The possessor of the vice of injustice likes to do the unjust thing precisely because it is unjust; he tramples on the rights of others precisely because they are rights of others.¹ It is this characteristic of injustice that is at the root of our abhorrence of the crimes of the Nazi and Communistic regimes; only this explains their boundless cruelties. It is important that we grasp this fully if we are to understand to what degree we ourselves are free or tainted with this vice. It will be worthwhile, then, to give some close attention to the formal nature of injustice.

This vice is a spearhead of chaos, for its work is to introduce disorder into our contacts with others. Intemperance and cowardice make a shambles of the rule of reason in the inner kingdom of a man's soul, turning his appetites into a rebellious horde perpetually locked in violent civil war. Injustice steps outside a man himself to the same goal of disorder and contemptuous hostility, for injustice deals formally and principally with others.² What comes to the unjust man himself as a result of his injustice is in a very real sense secondary. In-

¹ "It is not easy for any man to do an unjust thing from choice, as though it were pleasing for its own sake and not for the sake of something else: this is proper to one who has the habit, as the Philosopher declares." *Summa Theol.*, II-II, q. 59, a. 2, ad 2 um.

² "The will, like the reason, extends to all moral matters; i.e., passions and those external operations that relate to another person. On the other hand justice perfects the will solely in the point of its extending to operations that relate to another: and the same applies to injustice." *Ibid.*, q. 59, a. 1, ad 3 um.

justice looks primarily to the doing of evil, good is a secondary, accidental thing; and it is this that gives injustice a distinctively satanic flair for the complete disorder and chaos of hell.³ It is, by its very nature, a bitter, relentless opponent of amicable relations between men and of that basic order which must be the foundation of all human social life. From no more than this passing glance at injustice, it is not hard to see something of the amount of perversion which must go into its formation; since a first condition for this vice is that a man, in some viciously twisted way, should see the evil of tramping on others as an attractive focus for his desires.

There are three general types of injustice, contradicting the three types of justice. The first is a contempt for the common good and is not our immediate concern in this study. Indeed, the world-wide trend today to a greater statism, whether it be by increasing paternalism or an increasing tyranny in government, would seem to argue that the danger to the common good is not to be found in existing contempt for it but rather in a frenzied embrace of it to its destruction. For when the alleged concern for the common good goes to the lengths of overlooking the welfare of the individuals of the community, or sacrificing them ruthlessly to common goals, the alleged common good is no longer either common or good; it is spoiled, perverted, destroyed, as a child is by weakly coddling love that subjects the parents to childish whims. The second type of injustice concentrates on the disproportionate distribution of labors and rewards by those in authority. This too can be put aside for our purposes that we might concentrate fully on that injustice that exists to disturb the balance of justice between individuals.⁴

³ This is seen clearly if we remember that injustice is the direct contrary of justice. Thus, when St. Thomas describes the primary and secondary acts of justice, he is at the same time giving a direct insight into the opposing acts of injustice. "Doing good is the completive act of justice, and the principal part, so to speak, thereof. Declining from evil is a more imperfect act, and a secondary part of that virtue. Hence it is a material part, so to speak, thereof, and a necessary condition of the formal and completive part." *Ibid.*, q. 79, a 1, ad 3 um.

⁴ The first and third types of injustice are stated explicitly: "Injustice is twofold. First there is illegal injustice which is opposed to legal justice: and this

This injustice between individuals, particular injustice, works in the field of justice and is therefore concerned with an equality in external things, upsetting that equality. By it, a man reaches out to take more goods than belong to him or to bear less evils; which is to say, that he reaches out for someone else's goods and does his best to unload his evils on another.⁵ The two points to be stressed here are the external, objective character of the injustice committed and the specifying formality of the habit. In the case of temperance, for example, if a man becomes drunk by accident or through ignorance, he is not only not intemperate, he has not placed an intemperate act, for the object of temperance is not an externally established thing; rather its object depends entirely on proportion to the man himself. On the contrary, in the case of injustice, dealing with externally established order, the taking of another man's property is still an unjust thing however ignorant or well-intentioned we may be in putting our hand into his pocket. In injustice, in other words, the act may be materially unjust even though it is not formally so, a thing impossible in the other moral virtues.⁶

The second point to be stressed here is that "a habit (such as the vice of injustice) is specified by the object in its direct and formal acceptance, not in its material and indirect acceptance."⁷ It is the primary goal, the end of the action intended

is essentially a special vice, insofar as it regards a special object, namely the common good which it contemns; Secondly we speak of injustice in reference to an inequality between one person and another. . . ." *Ibid.*, q. 59, a. 1. For the second type of injustice, see *Ibid.*, q. 61, a. 1; q. 63, a. 1.

⁵ "We speak of injustice in reference to an inequality between one person and another, when one man wishes to have more goods, riches for example, or honors, and less evils, such as toil and losses," (II-II, 59, 1) *Ibid.*, q. 59, aa. 1, 2.

⁶ Objectum temperantiae non est aliquid exterius constitutum, sicut objectum iustitiae; sed objectum temperantiae, id est, temperatum, accipitur solum in comparatione ad ipsum hominem. Et ideo quod est per accidens et praeter intentionem, non potest dici temperatum nec materialiter, nec formaliter; et similiter neque intemperatum; et quantum ad hoc est dissimile in iustitia et in aliis virtutibus moralibus; sed quantum ad comparationem operationis ad habitum, in omnibus similiter se habet." *Ibid.*, q. 59, a. 2, ad 3 um.

⁷ *Ibid.*, ad 1 um.

by its very nature that sets up a habit as different from all others, not the secondary effects, or the accidental by-products. Injustice always consists in injury to another;⁸ for that injury to be a product of the vice of injustice, it must be the primary goal, the thing chosen, that attraction that draws a man into action.⁹ Here is the core of the satanic repulsiveness of this vice of injustice, that it finds its complacency in injury inflicted on others; it actually makes a goal of that betrayal of our common nature; the crunch of bones under its iron heels is music to its ears.

It follows from these two considerations that not all unjust actions are the fruit of the vice of injustice, though there is never any question of the objective injustice of an action whatever the driving forces that brought it into being. There can be unjust actions which are not from injustice. The unjust acts a man commits do not necessarily mark him out as an unjust man, in the proper sense of a man infected by the vice of injustice. This can, as a matter of fact, happen in two ways: either because the action is not aimed at an unjust goal, that is, there is no correspondence between the act and its proper (or unjust) object; or because the act as a matter of fact takes its rise from quite a different habit, that is, there is no correspondence between the act and the habit of injustice. To reduce this explanation to its simplest terms, we could say that unjust acts can be committed either from ignorance or from passion (such as anger, love of money, lust, and so on). In both cases, you

⁸ *Ibid.*, a. 4.

⁹ " . . . sometimes from choice, for instance when the injustice itself is the direct object of one's complacency. In the latter case properly speaking it arises from a habit, because whenever a man has a habit, whatever befits that habit is, of itself, pleasant to him. Accordingly, to do what is unjust intentionally and by choice is proper to the unjust man, in which sense the unjust man is one who has the habit of injustice: . . ." *Ibid.*, a. 2.

In Ethic., lib. V, lect. 13 (1045): "quando aliquis ex electione inducit alteri nocumentum, est injustus et malus. Et talis dicitur ex certa malitia peccare."

Ibid., lect. 14 (1057): "scilicet quod simpliciter et per se injustum facere non est aliud quam quod aliquis volens noceat: et in hoc quod sit volens intelligitur, quod sciat et quod laedat, et quod nocumentum inferat, et ut, idest qualiter, et alias hujusmodi circumstantias."

must absolve the man from the befoulment of the vice of injustice, though you are perfectly right to label him ignorant, hot-headed, greedy, or base.¹⁰

The point is of major importance, which explains why St. Thomas devoted a whole article to it, and drove it home in great detail in his commentary on the *Ethics* of Aristotle. We appreciate this importance almost instinctively, and give it expression neatly in the difference of our response to the injustices perpetrated in the world of the West and the Iron Curtain countries: we are angry at the first, we loathe the second.

As far as we can judge it, the white-slaver in this country is not primarily interested in debasing women but in using them for the accumulation of money. The dope peddler is not so furtively active because he likes the moral disembowling of

¹⁰ "Accordingly it may happen in two ways that a man who does an unjust thing, is not unjust: first, on account of a lack of correspondence between the operation and its proper object. For the operation takes its species and name from its direct and not from its indirect object: and in things directed to an end the direct is that which is intended, and the indirect is what is beside the intention. Hence if a man do that which is unjust, without intending to do an unjust thing, for instance if he do it through ignorance, being unaware that it is unjust, properly speaking he does an unjust thing, not directly, but only indirectly, and, as it were, doing materially that which is unjust: hence such an act is not called an injustice. Secondly, this may happen on account of lack of proportion between the operation and the habit. For an injustice may sometimes arise from a passion, for instance, anger or desire, and sometimes from choice, for instance when the injustice itself is the direct object of one's complacency . . . a man may do what is unjust, unintentionally, or through passion, without having the habit of injustice." *Summa Theol.*, q. 59, a. 2.

In Ethic., lib. V, lect. 13 (1041): "Tripliciter contingit aliquod nocumentum inferri circa communicationes hominum adinvicem. Uno modo per ignorantiam et involuntarie. Alio modo voluntarie quidem, sed sine electione. Tertio modo voluntarie et cum electione."

Ibid. (1044): "Quando aliquis sciens quidem nocumentum inferre sed non praeconsilians, idest absque deliberatione, tunc est quaedam injustitia, sicut quaecumque aliquis committit per iram et alias passiones, si tamen non sunt naturales et necessariae hominibus. . . . Illi igitur qui propter praedictas passiones alii nocent, peccant et faciunt quidem injustum, et actus eorum sunt injustificationes: non tamen propter hoc ipsi sunt injusti et mali, quia non inferunt nocumentum propter malitiam sed propter passionem. Et tales sunt qui dicuntur propter infirmitatem peccare."

men; the racketeer, at least the executive racketeers, were not concerned chiefly about murder and destruction. So it is on down the line through the "almost legal" injustices, and the perfumed brutalities of the modern drawing room. The crisscrossing parade of husbands and wives through the same home is not motivated primarily by pleasure in smashing the contract of marriage but by lust, boredom, cowardice or something of the kind. The crimes committed, approvingly, against unborn children, against the bodies of men and women, against the working man or his employer are, with practical universality, motivated by passion or by a fundamental ignorance that grows daily more fearful in its promise of social chaos. In view of this, it seems a solid conclusion that there is a gratifying absence of the vice of injustice in the men and women of the West.

The conclusion is confirmed by lack of any public knowledge of the existence of the vice on a large scale; a fact attested to by the unfeigned horror that rolled in waves over our people at the authentic revelation of the work of this vice of injustice by the Nazi zealots. We called the beatings, tortures, mistreatment and starvation of millions of men senseless, irrational, because, in our loathing of these things, we were reluctant to believe they could come from men still in possession of their human faculties. These things were inhuman, bestial, diabolic; in reality, they were revelations of our capacity for sins, and of the revolting nature of this particular sin that does in fact make up a substantial part of the climate of hell. We had not time to recover from that first shock when the evidence of the continuation and aggravation of this vice on national scales began to roll in; for too long we remained disbelieving, perhaps because we are so reluctant to admit that human beings can be so abusive of men, and like it. Now the evidence can no longer be denied; there is a note of terror creeping into our revulsion from this slimy thing. All of this surely confirms the conclusion that there has not been evidence of the vice of injustice among ourselves.

There have been, it is true, isolated cases of crime which would seem to indicate the vice of injustice as their source:

murders apparently for murder's sake, brutal assaults for no assignable reason, sabotage that served no further purpose, and individual torturings. We have met these with the standard modern armor against moral facts, explaining that these people were undoubtedly sick, pathological cases; they were morons, or neurotics, obviously insane. Sin, particularly utterly repulsive sin, sin that hasn't as yet been perfumed into acceptance by the respectable, must always be waved out of existence or into the doctor's office. The things done were no less abominated, but we spared their perpetrators our abomination by a great pity which was not so much in their favor as in our own, that we might not be forced to see that rational men can sin from deliberate malice, that the air of hell can be mixed in the atmosphere we breathe. Though, of course, we still insist on taking full credit for anything of virtue that crops up in our human world. Obviously we are fooling ourselves in this matter, for we *did* punish as criminals, in the war-criminals proceedings, men who had done just these same despicable things. The point here, however, is that the cases are sparse and scattered enough to allow us to engage in this self-deception. We have not been brought face to face with the vice of injustice here at home; which is a very good argument against its existence here. For injustice is not one to hide its face.

Before we settle back to gloat at the absence of the vice of injustice among us while it is so prevalent in other parts of the world, it would be well to note some of the cautions imposed on our congratulations of ourselves by the very evidence used to prove our freedom from the odious vice. Of the dangers to be particularly noted, two demand serious consideration: the serious risk of getting used to the sight of unjust acts, and the even more serious increase of moral ignorance that makes men blind to the injustice of the things they are doing or seeing done.

We can get so accustomed to sights, smells, sounds, as to be completely undisturbed by them; anything unaccustomed in these lines will bring us to sharp attention, while the usual

things go unnoticed. A man can sleep through the roar of an elevated train speeding past his window, yet hear the tinkle of an alarm clock. Much the same thing is true in the moral order. What shocks us at first sight can, little by little, become so much a part of our daily experience as to seem almost normal; if the shocking things are injustices, this means that we are getting ourselves thoroughly disposed to accept injustice, prepared, indeed, to cultivate the satanic habit since it seems so widespread. Every age has faced this danger, for every age has had its injustices. Perhaps the least degree of this danger comes from the openly criminal injustices against which society ceaselessly wages war; though people did once get used to having brigands on the roads and pirates on the seas, and we ourselves are almost resigned to graft. A greater danger comes from the "almost legal" injustices, perhaps because the helplessness of the protective forces of society gives them wider scope. But surely the gravest danger of habituation comes from the perfumed brutalities that are accepted as routine in any level of society; perhaps it would be better to see these things not as dangers but as disastrously accomplished facts. We have become accustomed to these things; and to this degree we are prepared to accept injustice as a normal procedure in social life.

Yet, regardless of the ignorance, the passion, or the good intention that lies behind a particular injustice, the damage done to men and to society is not lessened in the least. For material injustice is no less an overthrow of the balance of justice, of the order necessary to society than the injustice that flows from the formal vice of injustice. Just as much damage is done; for the norm of the just and unjust is an external thing which the inner dispositions of men do nothing to change.

With this in mind, it is frightening to look at the injustices to which we have, in fact, become accustomed. Irreligion is so taken for granted that we rarely think of it in terms of injustice, though it is, of its very nature, the basic injustice of the creature against the source of all that he is and has. We do not even hear the marriage contract shattering against the walls of passionate selfishness any longer; it has happened too often

to attract attention. Injustice has been so obscured in the practices of contraception that the organ of propaganda for this sort of thing can now call itself "Human Fertility," completely missing the humor of the absurdity. There is serious effort now being expended to have us take impurity in the young as normal and universal, and with considerable success. Fundamental mutilations of men and women, murders done in certain modes, thievery on a grand scale, all these we are habituated to, so much so that we are surprised and hurt when their respectability is challenged.

This moral blindness could not have come about through mere frequency of our contact with these things. The people who perpetrate these things with such undisturbed serenity of soul are not men and women who have simply become hardened to savagery; rather they are blind because they labor under a blanketing ignorance that makes it very nearly a psychological impossibility for them to see the injustice of their acts. But the injustice, you will remember, is no less damaging to men and to society despite their complete ignorance. It is this ignorance, the authors of it, and the means by which it has been accomplished that present the most serious threat to a defense against the vice of injustice both in its inner corrosion of ourselves and the violence of its acts from those who are already victims of it on the other side of the world.¹¹

With this established absence of the vice of injustice, it would be heartening to find that we were also just with all the vigor and promptness proper to the habit, or virtue, of justice. For then we would indeed be in a position to spearhead the opposition to the dark evils of injustice. In the beginning of this study, we voiced the strong suspicion that both the vice of injustice and the virtue of justice were absent from our national life. In investigating the latter part of that suspicion, we must tread carefully. It is never so true that virtue is better

¹¹ We shall touch on this ignorance and its causes in some detail later on in this study when we attempt to analyze some of the reasons for the decay of the virtue of justice.

hidden than vice as in the case of injustice and justice. It is not the smooth functioning of social life which draws our attention, but the upheavals of fights, riots, civil wars; we can take the first for granted as we usually do with beneficent things. Under these circumstances, it would be absurd to attempt to demonstrate the absence of justice from the whole body politic. Yet, the lack of social upheavals at the moment does not argue so much to the presence of justice as it does to the lack of injustice; we may possibly be coasting along on the momentum of the virtue of another age. To keep within the bounds of the evidence, let us state our suspicion in these terms: there seems to be little public evidence of the virtue of justice in our western world; and on *a priori* grounds with considerable confirmation from the facts, it is difficult to understand the continued existence of the virtue of justice except within the relatively small group of those who hold to vitally strong religious beliefs.

Even stated as cautiously as that, the suspicion of the defect of the virtue of justice in our time runs into a mass of evidence that seems to smother it at once. Look at the apparent contradictions of this suspicion. In the disputes between labor and management, both sides proceed in the name of justice; both sides make accusations of injustice; both appeal to government and to public opinion in vindication of justice, the protection of their rights. Surely, standing thus on their rights, both sides would seem to be consumed with a hunger and thirst after justice. Then there is the matter of arbitration which has come so far to the fore recently; surely the arbiter holds that position of impersonal fairness that we attribute to justice, and he acts in that objective fashion in declaring the just or right thing. Judges sitting in the courts are meting out justice according to the law, day after day. Even the most insignificant quarrel has its spectators who instinctively take sides, obviously for no personal benefit but distributing their cheers or hisses according to their judgment of the justice of the issue at stake in the quarrel.

It might be further argued that no people were ever so alertly

conscious of their rights as are our own people. The pugnacious assertion of these rights begins at the grammar and high school level with well organized student strikes! We know our rights; we are not to be pushed around by road-hogs, if we are Sunday drivers, or brass hats, if we are apprentice seamen. This is a democracy. Surely, the whole emphasis here is on rights; such a people must have justice ground into their bones. In fact, we go far beyond the demands of justice in our well earned reputation for quick mercy both at home and abroad; no other people have ever given so much, so quickly, and so unconditionally to friends, to enemies, to total strangers on the other side of the world.

Yes, there is argument for our possession of the virtue of justice, but there is also real question as to the validity of those arguments. Take, for instance, the allegations of mercy as proving the superabundance of justice in our hearts. Mercy is not necessarily a virtue; it can be, in fact, an unregulated outburst of the passion of sorrow.¹² It may flow from an entirely generous love, but then, again, it may be a recognition of the bond of weakness that ties us to all men in misery.¹³ In any case, it is a heady thing with an exhilarating lift that is reason enough for exercising mercy. For mercy properly belongs to God; it is the act of superior supplying for the needs of an inferior from his own superior resources. It is godlike action, testifying to the superiority of the merciful man, and men like to look and feel

¹² "Mercy signifies grief for another's distress. Now this grief may denote, in one way, a movement of the sensitive appetite, in which case mercy is not a virtue but a passion; whereas, in another way, it may denote a movement of the intellectual appetite . . ." *Summa Theol.*, II-II, q. 30, a. 2.

¹³ ". . . one grieves or sorrows for another's distress, insofar as one looks upon another's distress as one's own.

"Now this happens in two ways: first, through union of the affections, which is the effect of love. . . . Secondly, it happens through real union, for instance when another's evil comes near to us, so as to pass to us from him. Hence the Philosopher says that men pity such as are akin to them, and the like, because it makes them realize that the same may happen to themselves. This also explains why the old and the wise who consider that they may fall upon evil times, as also the feeble and timorous persons, are more inclined to pity: whereas those who deem themselves happy, and so far powerful as to think themselves in no danger of suffering any hurt, are not so inclined to pity." *Ibid.*, a. 1.

superior.¹⁴ No, merciful acts are not proofs of a superabundant justice. Rather, to be accepted as genuine products of the virtue of mercy and not the outpourings of passion, these presuppose the routine fairness of justice to those closer to hand and the uncounting selflessness of love to those who are so close as to be one with ourselves. A man who will cheat his business colleagues and abuse his children has no claim to the title of merciful no matter how many checks he writes out for the miserable across the oceans. The unquestioned fact of our bounty to the suffering does not dissipate the suspicion of the absence of justice amongst us; rather, it depends on our being cleared of that suspicion for its own virtuous character.

That the instances of insistence on rights noted above could be mistaken for evidence of our virtue of justice is possible only by a fundamental misunderstanding of the nature of justice. All these instances are ruled out as irrelevant by the same fundamental characteristic: justice looks to another, not to oneself. The thing is plain from the very definition of justice,¹⁵ and completely obvious from the most hurried analysis of the virtue: "justice by its name implies equality, it denotes essentially relation to another, for a thing is equal, not to itself, but to another. . . . Hence justice properly speaking . . . is only in one man towards another."¹⁶ In other words, by justice we are seeking to give another man his due, not fighting to get something of our own. We need no particular perfection of virtue to grab for our own; our sense appetites are incapable of doing anything else, and our will, by its very nature, is eminently fitted to reach out for what is naturally good, without further perfection. When our mouth waters for steak, it is for steak for ourselves not for someone else; when we insist on the vindication of our rights, we are reaching for what is our own.

¹⁴ *Ibid.*, a. 4.

¹⁵ "(Justice is) the perpetual and constant will to render to each one his right." *Ibid.*, q. 58, a. 1, ad 1 um.

"And if anyone would reduce it to the proper form of a definition, he might say that *justice* is a habit whereby a man renders to each one his due by a constant and perpetual will." *Ibid.*, a. 1.

¹⁶ *Ibid.*, art. 2.

In neither case are we practicing justice. We are not trying to give to another, but to get from him. Now, in all the instances cited, the common thing to be noticed is that no one of them involves this man proceeding to give another what is his right. In the disputes of labor and management, obviously the emphasis is on getting rights, not giving them. The arbiter is not moving to give anything, he is telling someone else what must be given; the judge is not acting in favor of another man, as would be the case in particular justice, but is declaring what the law insists shall be given by someone else. The judge is administering justice, he may be in some sense practicing distributive justice or enforcing legal justice, but he is not using the habit of particular justice which is our precise point in this study.

If we possess the virtue of justice, we are giving another man his due. Moreover, we are entirely willing to do this thing; and we do it precisely because it is another man's right in question. We *like* giving another man his rights; the joy of the virtue lies precisely in that complacency. Our action is not the result of threats, violence, legal pressure, or a nagging conscience.¹⁷ In fact, we get nothing for ourselves out of this just act; what benefits come to us are indirect. Indeed, we do no particular good to the man whose rights we respect: "When a man does what he ought, he brings no gain to the person to whom he does what he ought, but only abstains from doing harm. He does however profit himself, insofar as he does what he ought spontaneously and readily, and this is to act virtuously."¹⁸

The instances cited above, then, are no more evidence of a hunger and thirst for justice, or even of the very presence of a minimum virtue of justice, than the hungry growling of our stomach is evidence of pity for the hungry. On the score of

¹⁷ Cf. *Summa Theol.*, II-II, q. 58, aa. 1, 2. The texts cited above in footnotes 7, 9, and 10 as to the formality of habit in general and of injustice in particular have relevancy here. In the same context of the *Commentary on the Book of Ethics*, there are multiple texts making explicit the doctrine stated here; a man is just by knowingly and willingly doing the just thing; he acts from choice; the just thing is the thing intended, etc.

¹⁸ *Ibid.*, a. 3 ad 1 um.

this one characteristic of justice—that it looks to the rights of another—what is the public evidence of the presence of the virtue of justice? Such evidence would be indisputable acts or clear declarations of a complete willingness to abstain from doing harm to others and to society, of a positive pleasure in seeing to it that we did not harm others. Short of these public manifestations, only God Himself can know surely that this just thing of abstaining from injuring others is in fact done from justice. There will be plenty of evidence of injurious acts, and some of the just acts done with extreme reluctance; of course a good many people are being let alone from motives other than justice. On the *a posteriori* side, the case against the virtue of justice will have to rest principally on such negative evidence as contrary acts and public silence in deed and word. Actually, the argument has its chief force when we make it a matter of entirely personal experience. How many men and women do we know who have this perpetual will to give another his due, enjoying that just activity? How often do we ourselves concede an intrusion on the rights of others because of our own immediate advantage or convenience?

From this angle, then, the case against the presence of the virtue of justice among us rests upon the unjust acts that pepper society, the silence of deed and fact in favor of the virtue, and personal experience. It can be granted that this is not a very strong case; still, it is strong enough to be unsettling. In connection with the *a priori* argument, it will prove confirmation enough to be terrifying.

The *a priori* arguments almost state themselves once a few of the essential marks of justice are clearly understood; and these arguments leave us wondering how the virtue of justice can possibly continue to exist among us. There is no need for an exhaustive treatment of justice; for our purposes it will be sufficient to select two such essentials of justice: the radical presuppositions for the existence of the virtue in man; and the triple source of right. If our time fails to measure up on these essentials, we are coddling the dead bodies of words when we speak of justice.

There is no reason for justice, no sense to it, not even a possibility of its existence, unless man has a spiritual soul with the spiritual faculties of intellect and will by which faculties he can know universal and unchanging truth and make free choice of means to his end or, abusing that freedom, freely turn away from his end altogether. This is not an arbitrary statement. It is an immediate corollary from the notion of justice which has been at the root of all the civilizations of the West. Accepting that notion, we must see justice as engaged with equality which essentially denotes a relation to another; for justice, there must be a capacity to see the relation of one man to another, to be aware of otherness. This knowledge is far and away above the limitations of sense knowledge to the concrete singular; it is intellectual knowledge which lights up the path for free choice necessarily implied in every concept of justice. To surpass the limitations of the sensible, to reach out to the universal, to detect so immaterial a thing as a relation, and to be free of the senses' determination to a necessary object, all these are spiritual actions arguing apodictically to a spiritual principle of action in man.¹⁹ By this consideration alone, justice is restricted to natures capable of intellectual knowledge and free choice, that is to spiritual natures: to God, angels, and men.

It will not do here to adopt evasive tactics, dropping the word "spiritual" in favor of the more vague "psychic." Such a trick would allow us to point to the psychic life of the dog or the monkey and feel that we have obliterated the distinction of animals from men, and the notion of the spiritual. Of course, there is psychic life in the dog and the monkey; they are both

¹⁹ "Since justice by its name implies equality, it denotes essentially relation to another, for a thing is equal, not to itself but to another." *Ibid.*, a. 2.

"Again the act of rendering his due to each man cannot proceed from the sensitive appetite, because sensitive apprehension does not go so far as to be able to consider the relation of one thing to another; but this is proper to reason." *Ibid.*, art. 4.

"The will is borne towards its object consequently on the apprehension of reason: wherefore, since the reason directs one thing in relation to another, the will can will one thing in relation to another, and this belongs to justice." *Ibid.*, ad 3 um.

alive and therefore have those principles of life which we call souls. For that matter, there is psychic life in a plant, and for exactly the same reason. The relevant point here is the *kind* of souls, a point resolved by a simple observation of the kind of life of which these souls are the principles, the effects of which they are the causes. There is no justice between plants, between dogs, or between monkeys, because there is no spiritual life in them to make them capable of a knowledge of relations to others and of free choice. The demand justice makes is for a spiritual nature in the full sense of that term, an immortal principle of life that exceeds the limitations of the material universe.

No argument is necessary to make clear what the philosophies of our time have done to the notions of spiritual, immortal soul, intellectual knowledge, unchanging truth, free will, and choice that is within a man's power. No argument is required, for a denial of these things is an explicit, even a proud, fundamental of American philosophies. The local twists given to relativistic positivism by the pragmatism of James and the refinements of John Dewey have not weakened but have made more bold these fundamental denials. The rejections of man's spirituality, of unchanging truth, of unswerving moral goodness, have been made with utterly wearying frequency and refuted just as often; certainly there is no need to authenticate them again, for there is no one to challenge their universality in American philosophical thinking.

The particular relevancy of these denials for our present study lies in the fact that they have become basic in our American philosophy of education, with the result that they must be embraced, or at least repeated in examinations, in the larger colleges where the teachers of normal schools are trained. The graduates of these colleges then staff the normal schools, where, naturally, the same philosophy of education is the daily diet of the students who are to be the teachers of elementary and secondary schools supported by public funds. Since this hasn't happened yesterday or today, we already have generations of young people who have been exposed to this

philosophy of denial through all of their scholastic days. All this is common knowledge; an achievement against justice made possible by the tremendous resources of government. The matter for wonder is not that perfumed brutalities creep into the lives of the products of this philosophy; rather, it is astounding that we are aghast at the vice of injustice behind the Iron Curtain. It is, in fact, an encouraging testimony of the soundness of men that the wholesomeness of their human nature has resisted the complete penetration of the intellectual poison down to the last details of their relations with others. These people have been made ignorant through the elaborate processes of education, stupified to the point of being blind not only to the reasons for justice, but to the very possibility of its existence.

The argument from the triple source of right seems easier, perhaps because it becomes tangible in our legal thinking and so approaches more immediately to the world of the concrete. The rights of others, and our own, are either fantasy or fact, fiction or reality. If we settle for fantasy and fiction, then the whole question of justice is unworthy of consideration; it is a myth foisted on a world of men who are by nature implacable enemies with nothing but their own strength to support their days in a jungle world gone mad. Here there is no justice, only a pretense of it in the mode it pleases the present spinner of fiction to cast it. This conception, we think, would be indignantly rejected by the men of the West. But let us not be too sure of this until we have looked at the facts or realities of rights.

The proportion between a man and a thing, or his right to this thing, to be fact, reality, must have a solid basis, a source satisfying to our rational demand for explanations. Why does this man have a right to this thing; why does such a proportion come into-being at all? There are only two possible sources of such a proportion; it comes either from the very nature of things or from the determinations of men. We have known this, of course, for the centuries that stretch back to the beginnings of western thought. Man has a right to some things by nature, a

proportion is set up by the very fact that he is a human being; there are, in other words, rights that are established by the natural law. Other rights are the product of a general agreement of the men of a society, an agreement that, obviously, can not conflict with man's natural rights without destroying those who made the agreement; these are the positive rights set up by positive law in its determinations of the proportions left undetermined by natural law. Still other rights, also by agreement, are the product of what is sometimes called private law or contract; this, too, will have the social sanction and moral force of positive law which marks out the proper field of contract and the conditions which must accompany the private agreement for validity before the court of society.²⁰

Other sources have in recent times been assigned to account for men's rights by way of replacement of the anciently recognized sources: money, blood, the will of the ruling man or

²⁰ "The right or the just is a work that is adequated to another person according to some kind of equality. Now a thing can be adequated to a man in two ways: first by its very nature, as when a man gives so much that he may receive equal value in return, and this is called natural right. In another way a thing is adequated or commensurated to another person, by agreement, or by common consent, when, to wit, a man deems himself satisfied, if he receive so much. This can be done in two ways: first by private agreement, as that which is confirmed by an agreement between private individuals; secondly, by public agreement, as when the whole community agrees that something should be deemed as though it were adequated and commensurated to another person, or people, and acts in its stead, and this is called positive right." *Ibid.*, q. 57, a. 2.

"As Augustine says, that which is not just seems to be no law at all: wherefore the force of a law depends on the extent of its justice. Now in human affairs a thing is said to be just, from being right, according to the rule of reason. But the first rule of reason is the law of nature, as is clear from what has been stated above (q. 91, 2, 2um). Consequently every human law has just so much of the nature of law, as it is derived from the law of nature. But if in any point it deflects from the law of nature, it is no longer a law but a perversion of law.

"But it must be noted that something may be derived from the natural law in two ways: first, as a conclusion from premises, secondly, by way of determination of certain generalities. . . ."

"Accordingly both modes of derivation are found in the human law. But those things which are derived in the first way, are contained in human law not as emanating therefrom exclusively, but have some force from the natural law also. But those things which are derived in the second way, have no other force than that of human law." *Ibid.*, q. 95, a. 2.

ruling class, society, and so on. But all of these are obviously false for they suffer from a double defect; first, they give a man no stability of rights in time, extent, or depth, for all of these things are accidental to men as men; secondly, they make fictions of rights, giving them no connection whatever with the natural world, the world of things as they are. As the West has seen it for so many centuries, a man has rights because there is a necessary connection between these things and the goals for which human nature is designed; the basis, in other words, of his rights is the solid order flowing from the nature of things as they are, from the world of reality. Man is not shoved to his goal; he is moved by commands, and moves himself by obedience to those commands. Over and above instincts, he has obligations; and because of those obligations, he has rights to the opportunities to fulfill his obligations and get to his goal.

If we remove the sources of rights, eliminate them from our thinking, we have abstracted the material which is proper to justice; there can be no justice because there is nothing for justice to work on. If we keep the words right and justice, but deny their connections with nature, we are in no better case for we have made whims or fictions of rights. If we name any of the accidental sources mentioned above and then proceed to social living as though right and justice meant something, we are still in the world of fiction though we are pretending this world is a real world. Men, in fact, have no rights *as men*.

What are the facts in the West relative to the sources of right? What, if anything, have we done to law and to contract? While it may be tempting to look at what has happened to the marriage contract, to labor-management contracts, to treaties and international agreements, we can pass over the matter of contracts in favor of their sources; namely, positive and natural law. If these two have not been maintained in their objective reality, there is no reason to expect any but the most ephemeral of fictional rights from contracts.

The most immediate observable attack on the reality of positive law, and therefore of positive rights, has been the now long enduring attempt to separate positive law from morals,

to make it a thing apart from natural law and fundamental truths. Not that this has been an unsuccessful attempt; it has been widespread, dominating most of our legal thinking on the theoretical level. Its proponents have been eminent men who were at the same time extremely vocal. They have made use of both qualities to pour out their opinions at such a rate as to flood the field; what opposition was not drowned by this eminent flood, was sneered into insignificance as anachronistic, conservative to the point of absurdity, and wholly out of touch with progress. Of course the thing spread from the theoretical level to that of actual practice and gave us a picture of law ranging from a convenient weapon of the socially strongest, through the snap-judgments of judges, to a verbal record of judicial moods. All this merely echoed the relativistic positivism which had taken over on the philosophical level, proceeding on the same hopeless assumptions of relativistic truth and relativistic morals as inevitable consequences of the denial of intellectual knowledge.²¹

Our concern here is not to argue the point of the relativists among the legal thinkers, but to see clearly its repercussions for the virtue of justice. If men are convinced, and proceed to legal practice on these grounds, the virtue of justice makes no sense. In this case, justice would revolve around rights that might easily disappear by tomorrow or next year, since there is nothing absolute about them; at best, they are the result of some accident such as wealth or the favor of a particular group or government, at worst they are pure fictions evolved to keep the mass of men in line. Why should such rights not be changed, curtailed, eliminated, or transgressed if the thing can be done conveniently and safely?

The undermining of natural law is an evident thing from

²¹ For thorough substantiation of this fundamental attack on the reality of positive law, the reader is referred to the detailed studies made by Miriam T. Rooney: "Law and The New Logic," *Proceedings of the American Catholic Philosophical Association*, XVI (1947), 140; "Pluralism and The Law," *New Scholasticism*, XIII (1939), 305; "Mr. Justice Cardozo's Relativism," *Ibid.*, XIX (1945), 1; "Law As An Instrument of Social Policy: The Brandeis Theory," *Ibid.*, XXII (1948), 1.

what has been said above of the denial of the fundamental presuppositions of the virtue of justice. Those denials were aimed at the nature of man, denying him a spiritual soul, intellectual knowledge, and free will; without these things, it is futile to talk of a natural moral law for men, a rule of action flowing from human nature itself. The denial seeped down into our legal thinking to feed the emptiness of the new theories of the independence of positive law from directives of nature. One can judge the extent of the damage done by the violence of the present reaction making itself felt in favor of natural law. Again, there seems no need for a detailed authentication of this matter here; for, again, there is no one to challenge the fact. This has not been something that men did furtively, in shame, but openly in a spirit of adventurous pioneering. The reader who desires details and copious references need only turn to the series of excellent studies by Attorney Ben W. Palmer in the *American Bar Association Journal*.²² The important thing here is to understand the significance of this rejection of natural law as it concerns the presence of the virtue of justice among us; to see, in other words, the impossibility of justice on grounds that eliminate both the subject of justice and its proper material. The question thus becomes "how can justice exist among us?" Rather than "does justice exist among us?"

We might take a pollyanna attitude and dismiss all this as mere theorizing which men will never try to put into practice; after all the facts do show that the vast majority of our people are being let alone by their fellows, so justice does in fact exist. There are several difficulties connected with this comforting refusal to face the facts. It is most probable that the just acts which leave us fairly peaceful may have other sources than justice; but it is the virtue of justice which is an essential for the life of society. Again, it is a fact that men

²² "Defense Against Leviathan," June; "Background for Dissensions: Pragmatism and Its Effects on the Law," December 1948; "Groping For a Legal Philosophy: Natural Law in a Creative and Dynamic Age," January, 1949.

See also "The Natural Law and Pragmatism" by the same author in *University of Notre Dame Natural Law Institute Proceedings*, I (1949).

have put this kind of thinking into practice; that is precisely what has aroused us to the point of revulsion at the murder of society in the Iron Curtain countries. Finally, *we* have introduced a great deal of this thinking into the details of our own living. How else can we explain the brutalities routinely perpetrated by the highly respectable, and with a serenely clear conscience? When men can be made so ignorant as to be blind to the nature of man and opposed to the basic sources of human rights, it is not possible to prevent that ignorance from flowing into their actions.

It is possible that the patterns of action inherited from a wiser age have carried us along in spite of our loss of the wisdom which designed and sustained those patterns. If there were no breakup visible in these patterns, we would still have good reason for alarm at their lack of foundation; but beyond all question, those patterns are breaking up. Yes, we are horrified at the savagery that has swept over Eastern Europe, but our grandparents would be just as horrified at our divorces, contraceptive industries, respectable killings, and debonair irreligion. If, as seems the case, we have traded wisdom for materialistic opportunism which rules out the possibility of wisdom by its denial of the spiritual, then we are committed to an unfounded hope of somehow muddling through social life under the guidance of an extended sense knowledge, necessarily blind to relations to others, or under the guidance of utterly tyrannous wills that have no reason to care about such relations to other men.

It just can not be done. The minimum for social living is that the men of society abstain from injuring each other; which is to say the minimum of the virtue of justice is essential for social life. That respect for the rights of others must be a pleasant, solidly perpetual thing to which we need not be driven. Briefly, then, for the maintenance of human society, it is required that each man shoulder his responsibilities in the face of the rights of his fellows. You ask too much when you demand this in the name of fictional rights with no basis in reality, or when you ask it of a man incapable of knowing

rights, incapable of commanding himself, incapable of obeying the commands of others, incapable of law.

It would seem, then, that our original suspicion has considerable foundation, that we are living in a society that subsists without either the vice of injustice or the virtue of justice, or at least without reason for the virtue of justice. Up to now, our nature has risen in instinctive protest against the horrors of the vice of injustice nakedly revealed in all its malice. But we are being conditioned for the reception of that vice into our own souls by the parade of unjust acts that offend our eyes less and less, and by a deliberately cultivated ignorance that blinds us to the injustice of many savageries. Meanwhile, the virtue of justice becomes more impossible as we whittle away its foundations in the nature of man and the sources of right.

If all the world were at peace, if there were no open evidence of the brutality of injustice, if there were no gathering clouds of malice, we would still be teetering on the edge of a momentous decision. For a social vacuum cannot endure for long; inherited patterns of action will eventually wear thin; eventually, and in a very short eventuality at that, either injustice will move in to make a savage desert of our lives or justice will reassert its basic support of social living. In implementing our abomination of injustice, we have much more to do than issue a call to arms.

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PHYSICAL METAPHYSICS



THOMISTS may well be grateful to Sir Edmund Whittaker. Not because Sir Edmund's latest book¹ is the work of a distinguished scientist and mathematician who has groped his way through the tangle of modern thought towards the philosophy of St. Thomas should Thomists be thankful, but rather because in this book they will find a clear and brief statement of an attitude, tacit rather than expressed, towards philosophy in general and Thomism in particular which is common to many scientists today. It is difficult to deal with an attitude and to discuss implications. Sir Edmund's gift of recognizing these assumptions and clearly formulating them has made discussion of this attitude more feasible. He has, as it were, come out into the open, where the Thomist can engage him point for point, can state his side of the case and can assess the value of the arguments brought against his own position. There is no doubt that the outlook and spirit of this book is shared today by great numbers of scientists, even those who are Catholics,² so that such an article as this, in criticising the views of the author of this book and stating the Thomistic case, must regard the author more as a type than as an individual, as representative of a body of men whose words carry great weight and whose influence is far-reaching. Nor should the aim of this article be regarded as exclusively critical; one may presume that the scientist is as eager to hear

¹ *Space and Spirit*, Theories of the Universe and the Arguments for the existence of God (Donnellan Lectures, Trinity College, Dublin, June 1946; Dublin: Nelson, 1946).

² As an example, reference may be made to a cycle of conferences held in Rome (February and March, 1948) under the auspices of *Studium Christi* and which dealt with the general subject "Science and Mystery". Some of the more eminent lecturers, acknowledged authorities in science and mathematics, such as Professors Giorgi and Fantappie, expressed views very similar to those in this book. In the last conference of the series, however, Professor Severi declared that after years of thought he had been forced to recognise the need for a transcendent metaphysics.

something of the Thomistic attitude towards the questions under debate as is the Thomist to consider the attitude of the scientist, who is his companion and fellow-laborer in the search for knowledge.

The theme of this book can be summarised under three points: (1) Modern physical science has presented us with a representation and explanation of natural phenomena that is not only different from, but quite at variance with, those held by the Schoolmen of the Middle Ages. Metaphysics is grounded in scientific experience, it starts from that knowledge of nature which is afforded by physical science. Hence the metaphysics of the Schoolmen must be regarded as definitely outmoded; a new metaphysics, adapted to the scientific conceptions of the day, is required.

(2) In particular, modern science has disproved the principle of causality as formulated by Aristotle and his followers; causality must now be defined in terms of scientific experience, and its application must be greatly restricted.

(3) The traditional Five Ways by which St. Thomas proves the existence of God must therefore be critically reconsidered and recast. The Third and Fourth Ways are passed over as involving concepts which are outside the scope of science; the First Way is rejected as involving causality of the Aristotelian kind; the Second and Fifth are restated and are said to be strengthened by their scientific rehabilitation.

* * *

The central theme of the book is the relation of modern science to metaphysics, which, of course, deals with causality and the proofs of God's existence; yet from the outset there seems to be some ambiguity as to the way in which Sir Edmund approaches this question. His aim, if a single initial remark is considered, would seem to be to inquire into certain matters of fact: "My own aim is likewise practical. I leave on one side many abstract philosophical questions and concentrate rather on a humbler, but I hope useful, inquiry as to whether the conceptions of the external world on which St. Thomas based his arguments have been affected by the development of scien-

tific knowledge since the thirteenth century.”³ As thus stated, the purpose is simply to state the changes that have taken place in science, leaving aside their philosophical repercussions; but the book does far more than that, and is better described in the words at the end of the chapter from which we have quoted: “with St. Thomas’ Five Ways there are entwined more or less closely certain doctrines regarding motion, causality, cosmology, and teleology, which were derived from Aristotelian sources. Our purpose is to inquire how far those doctrines, or the dependence of the arguments on them, have been illumined or affected by the later developments of natural philosophy.”⁴ Such an aim is anything but purely scientific, and invites the philosopher to consider the book rather as philosophical than as scientific. At the end of the book we find a rather more cautious statement of the aim: “The aim of the present work has been to indicate—for the consideration of the theologians who are not men of science—what the obstacles are, and to show—for the consideration of the scientific inquirer—that they are less formidable than has sometimes been supposed”;⁵ obstacles, that is, to the union of natural theology with modern science. If the aim is to tell philosophers what the scientist thinks, what his science affirms, and what the average scientist conceives to be the metaphysical notions involved, then Sir Edmund has succeeded admirably. However, this presentation of the scientist’s “homemade” metaphysics, and particularly of his interpretation of Aristotelian doctrine, serves principally to stress the fact that scientists are not metaphysicians, and are not qualified to determine the issue at stake. The metaphysician is frequently reproached for his lack of knowledge of physical science, but at least he generally recognises his limits and refrains from trespassing outside his own domain.

The scientist as such is not expected to be an expert in metaphysics, but one may reasonably require that the scientist who undertakes to treat of the relation between science and Aristotelian metaphysics should have a competent knowledge of

³ *Op. cit.*, p. 40.

⁴ *Ibid.*, p. 43.

⁵ *Ibid.*, p. 135.

that philosophical system of which he speaks. The presentation of Aristotelian concepts in this book is, however, not only elementary but false, particularly as they are understood by Thomists. Matter and form are described as "abstractions,"⁶ and the conceptions of such realities as logic, analogy (described as "essentially an inference from sampling"⁷), causality and creation have little or nothing in common with those of the Stagirite or St. Thomas. The Thomist strongly objects to having his science identified with this pale and lifeless parody and, relying on his despised logic, points out that the terms in which the central problem of this book is stated are inadequate, or, in other words, that from the very beginning the author is guilty of *ignoratio elenchi* in presuming to treat of Aristotelian and Thomistic metaphysics, whereas in reality he is speaking only of what he imagines them to be.

In the book, Sir Edmund speaks so often in the name of the Occamist objector that one may doubt whether he is presenting his own views; but in his remarks on a review of his work he very clearly states the main thesis of it: "Aristotelian metaphysics is incompatible with the universally accepted results of modern science."⁸ The main reason for this assertion is that metaphysics must be rooted in experience, as both Aristotle and St. Thomas so insistently taught, thereby differing so radically from Descartes and his school who seek to deduce a whole philosophy by *a priori* deduction of a mathematical kind from primitive concepts which are given by intuition. It can no longer be maintained that elementary or "infantile" experience will suffice, for such experience is now contradicted on many points by modern science. Moreover, the world from which metaphysics must start is that same world which is the subject of modern science. Obviously metaphysics must be based on the data of that science and must be a new system, adapted to modern physical theories. "If St. Thomas were

⁶ *Ibid.*, p. 6.

⁷ *Ibid.*, p. 37.

⁸ Cf. correspondence in *The Clergy Review*, XXVIII (1947), 70, regarding a review by L. MacReavy, entitled, "Metaphysics á la Mode," *ibid.*, pp. 315-322.

alive now, he would start from the science of nature as we know it. . . . It therefore becomes necessary to find a metaphysics different from that which has been associated with classical physics; for metaphysics must originate with reference to physics, since it is the conceptual framework into which our experience of Nature is to be fitted.”⁹

It is difficult to treat this contention quite seriously. The rapidity with which scientific theories have been proposed, modified, and rejected in recent years has become proverbial, and scientists such as Sir Arthur Eddington warn outsiders to stay outside the building where the scientists are at work, as “structural alterations are in process”. There is so much uncertainty that it now seems that the only certainty is that uncertainty to which Heisenberg’s principle is said to refer. Under these circumstances, the invitation extended to the philosopher by Sir Edmund sounds suspiciously like that of the spider to the fly. What is yet more amazing is that on this contention it would follow that metaphysics as a true science was impossible until this century of scientific progress, since in order to be true it must be based on facts which are known only in this century. One can appreciate the author’s preference for the Occamists; surely it would be more logical to side altogether with them and deny the possibility of metaphysics as a valid and independent science. In truth, this attempt to found a new metaphysics is tantamount to a denial of the very possibility of metaphysics, since it degrades metaphysics to the status of a mathematical elaboration of the facts of experience discovered by science.

This notion leads us to what are, I think, the two fundamental presuppositions that determine Sir Edmund’s attitude: his empiricism, and what may be called his Platonic mentality. At first sight these two tendencies seem to be opposed, but as Sir Edmund himself so ably points out in his book, the renaissance witnessed the union of these two mentalities, and their union, consecrated by Descartes, became a permanent feature of modern thought.

⁹ *Space and Spirit*, pp. 4, 106-107; cf. pp. 67-71.

The Platonic (enshrining the Pythagorean) tendency is clearly expressed in the following passages: "A connexion was set up between mathematics and esthetics. This was generalized into the principle that numerical laws, analogous to the numerical laws of harmony in music, were the proper means of interpreting the fundamental unity of the cosmos; that there must be a mathematical harmony of the external world, underlying all phenomena; that this was the reality which philosophers sought, and that the task of men of science was to find it"; and "The Aristotelians never accepted the principle that the structure of the inanimate world is essentially mathematical; it was this principle, derived from Plato and ultimately from the Pythagoreans, that was to inspire the men of the new age; and it was the failure of the later Scholastics to assimilate it that led, more than any other single circumstance, to the alienation of men of science from mediaeval philosophy."¹⁰ This seems to be also the main criticism against the Aristotelians, and the basis of Sir Edmund's position. "The vast network of mathematical relations, to our ideas, constitute the outstanding evidence of universal order."¹¹ We are not surprised, then, to find Sir Edmund adopting a purely mechanistic conception of the universe: "Modern natural philosophy is based on the hypothesis that there are a certain number of different kinds of elementary particles—electrons, protons, neutrons, positrons, etc.—and that the entire physical universe with all that happens in it is completely specified when we know the location and motions of these elementary particles—their aggregation into nuclei and atoms, the velocities of the atoms, etc."¹² Nor are we surprised to find it stated that "the highest type of proof is the kind that is found in pure mathematics,"¹³ the reason being that such proofs "depend on no premisses whatever, except purely logical propositions, which are universally accepted as the necessary pre-suppositions of reasoning."¹⁴ Here Sir Edmund is at one with

¹⁰ *Ibid.*, pp. 62, 60.

¹¹ *Ibid.*, p. 71.

¹² *Ibid.*, p. 2.

¹³ *Ibid.*, p. 13.

¹⁴ *Ibid.*, pp. 33, 34.

Prof. Whitehead, who writes "Mathematics is the science of the most complete abstractions to which the human mind can attain."¹⁵ One may surmise, with the majority of those mathematicians who think of the philosophical implications of their science. A metaphysics which purported to move in a higher plane of abstraction is therefore logically considered to consist of "verbal futilities," and "platitudes," according to Sir Edward's own word.¹⁶

The empiricism that sets the tone of this book appears in such passages as "there can be no absolute certainty in an argument which infers the existence of unknown entities from the mere fact of the existence of certain other entities. . . . It is evident that principles such as those of causality and analogy carry us beyond direct observation and experiment, and belong rather to the ontological and transcendental domain—to metaphysics, in fact; and this explains why the proofs have no coercive character; it is because there is no general agreement on questions of metaphysics";¹⁷ and "even if it is granted that the fundamental conceptions of science—cause, order, relation, identity, class—are metaphysical, they do not constitute knowledge until their content has been filled in from experience."¹⁸ This empiricism is so radical that at times it appears as sheer nominalism, as, for instance, when we are told that the famous disputes in the Middle Ages on universals concerned "general terms, which represent the common basis of a class of individual objects,"¹⁹ and that "the principle of contradiction relates only to propositions . . . it does not assert that two *conditions* cannot co-exist."²⁰ It is inevitable that such an empiricist bias should lead Sir Edmund to reject a transcendent metaphysics and advocate a substitute made to scientific measure. The fundamental assumption of the book, that metaphysics must be empirical, logically entails the denial of the Aristotelian and Thomistic systems.

¹⁵ *Science and the Modern World* (Pelican Edition, 1938), pp. 48-49.

¹⁶ *Op. cit.*, p. 141.

¹⁷ *Ibid.*, p. 37.

¹⁸ *Ibid.*, p. 112.

¹⁹ *Ibid.*, p. 109.

²⁰ *Ibid.*, p. 141.

Scientists who write about the relation of science to philosophy seem not to realize that such questions as the nature of metaphysics and its relation to other branches of knowledge are essentially of a metaphysical nature; obviously these problems lie outside the scope of the particular sciences, and are set in a very different mental context or frame of reference. If one sets out to show that metaphysics is essentially dependent on science, and argues from the facts of that science, then one is tackling a metaphysical problem by scientific means, or, in other words, already assuming that science can settle questions of metaphysics, which is precisely what one has to prove. Proving that metaphysics is determined by science, by means of a metaphysics which is in fact such, strikes the Aristotelian as being a vicious circle. By denying metaphysics one is asserting what he denies, because such a denial can be supported only by reasons that are metaphysical. Kant emphasized this, saying: "Those pretended indifferentists, no matter how they try to hide themselves by substituting a popular language for the terms of the school, can not even think anything without inevitably falling into those metaphysical affirmations for which they profess such great contempt."²¹ Sir Edmund is not one of those indifferentists, but one who is led, as Kant was, from science to philosophy, may learn from the example of Kant, who devoted twenty years to philosophical reflection before he undertook to treat of the relation between science and metaphysics.

To make metaphysics essentially dependent on science is really to deny its character as an independent and distinct science, and to betray a misunderstanding of the nature of metaphysics, one to which the scientist is particularly prone, though it does contain a truth which the philosopher will gladly admit. There is all the difference in the world between the science of this or that being, of *such* being, and of being as such. Being as such is the object of metaphysics, and this to the scientist, for whom being is always this or that particular being, must seem no more than an empty abstraction.

²¹ *Critique of Pure Reason* (1st Edition), preface.

We attain this concept of being by a negative process, by a progressive abstraction from all particular determinations of being, and this is taken to mean a progressive impoverishment, a gradual divesting of being of all its reality, until we are left with a vague indefinite core of indeterminateness which is akin to nothing. That is perhaps true of the acquiring of the image of being, but not of that abstraction by which the Aristotelian teaches that the concept is attained. Such abstraction is indeed a negative process, but that which is progressively denied is not reality, but limiting reality, namely those modes which particularise and restrict that which is of itself without limits. The progressive denial of limits is a gradual enrichment; as the abstraction proceeds, the idea of being becomes fuller and more pregnant; it is seen as transcending its concrete determinations and specific differentiations, which it surpasses yet includes, for all of those limiting modes are being. It is no easy task, this building up of the full and rich concept of being that embraces and transcends all; it is only in rare moments that the metaphysician is rewarded by an authentic contemplation—for such it is—of being as such, in its utter unity yet infinite complexity and diversity, with that character of analogy that marks it through and through.

Most false philosophies, in the last resort, spring from the failure of their authors either to rise to this height of thought or to see this concept of being in its true light; they accept a duality as primordial or attain to a universal reality less than being. Being transcends the dualism thought, external reality of Descartes and the idealists; it transcends the diversity implied in the universal Becoming of Bergson and the evolutionists; it transcends the opposition essence-existence which divides rationalists from existentialists; for all of these are being, and are included in that deepest and richest of all concepts. Yet our knowledge of this object is imperfect; it is beyond the capacity of our human minds, adapted to particularisations of being in the material order, to exhaust its significance, or to see all things clearly in the light of their continence in being, for this is a divine way of knowing. We

do not see being, as it were, from the inside, our appreciation of it is negative and external, we can attain only certain of its general modes. Our science of metaphysics is imperfect, due to our frailty, not to its object; it is fringed with mystery and obscurity; yet all other sciences depend on this knowledge which, though inadequate, is primary and regulative of all knowing. The mind is at home when treating of less universal manners of being; there it can move more freely, with greater clarity according as it approaches that which can be sensibly experienced, though with a corresponding loss of intelligible profundity. The philosopher who makes frequent excursions to the terrain of science increases his knowledge of these material manifestations of being; he may return to his first vision with something gained, to see in being those realities of which he has learned and thus to enrich his initial and mysterious concept of being. Such contact with science, as indeed with all experience, is beneficial to metaphysics, and the philosopher is duly grateful to those men of science who make it possible for him to follow the progress that is being made in other fields of research, for which he himself is neither qualified nor free.

In the light of these remarks on the nature of metaphysics as understood by Thomists, we may approach the question of the experience which is required as a basis for this science. That experience is necessary no one has more strongly affirmed than Aristotle and his greatest disciple, who will not admit the purely *a priori* method even with regard to the existence of God. What of that "most infantile kind of observation" ²² which, according to Sir Edmund, the Aristotelian claims to be sufficient? There is an experience which is neither infantile nor scientific; we may call it just human experience, mature and certain in its own sphere, resulting from the natural and primary activity of our human faculties with regard to their natural objects. One may refer to it as common sense, if one is careful to abstract from the merely pragmatic elements generally associated with that term, and the philosopher readily

²² *Space and Spirit*, p. 68.

acknowledges the services rendered by science in purifying and correcting many of the notions which have been included in "common sense". The most common notion of all is that of being, on which follow many other, less general yet transcendental as regards the particular differences between determinate kinds of being, such notions as essence, nature, existence, substance, act, potency, truth, goodness, becoming. These are primordial data which are grasped instinctively. Their implications may not be realised, their nature understood, they may even not be understood for what they are; metaphysics would be far easier if we needed only common experience to understand the nature of such realities. But in the original intuition of really existent being, which depends upon experience, they are given at least as facts, and the mind can, in virtue of its guiding principles, whose formation is also conditioned by experience, achieve an intelligible synthesis in the light of the concept of being.

Scientific experience may be rather a handicap than a help when one comes to reflect on the nature of these realities in that effort to sound their meaning and determine their relationship which we call philosophy. The intelligible determinations of being with which metaphysics deals, substance, for instance, may be confused with the material element of a particular substance, or potency may be identified with the physical quality of a body, as has happened with so many scientists. They, like all men, have a natural, common-sense idea of substance, recognizing themselves, for example, as independent and complete existent unities; they are aware that, to make progress in their science, their minds must be possessed of an active power to learn, and of passivity to receive the knowledge which they seek; but such notions are pushed into the background, to be substituted by hybrid products of the imagination which may easily be mistaken for genuine metaphysical concepts.

The despised common sense can thus be more human, more integral, more real, and intelligible than scientific experience, though lacking its precision and extent. The two experiences

fasten on different aspects of reality. Science concentrates principally on the aspect of diversity and divisibility, on the quantitative and measurable, and thus on the material elements of which things are composed, those precisely which are, as such, least intelligible; whereas common experience grasps the object as a whole, as a unity, as a certain nature, with a specific manner of acting. This is what an Aristotelian calls the formal aspect; it is the primarily intelligible quality of an object. Thus the plain man will, by such experience, learn that a thing is real, that it exists, that it is different from other beings, that it acts and is acted upon, that it is known by him, perhaps willed by him, and so on. This is the experience which alone is a necessary and sufficient basis for that abstractive induction by which the mind reaches its first notions and formulates its first principles, and is thus able to found its metaphysical speculation on reality. Science as such can enlighten us no further on the nature of these transcendent properties of reality; they pertain to a different order of being and intelligibility. Reality seems to mean something different in each order. The further science progresses in its analysis of intra-atomic elements, for instance, the more matter seems to dissolve into the intangible realm of waves and forces in which it becomes increasingly more difficult to distinguish what is real from what is a mathematical equation or function. In proportion as metaphysical abstraction proceeds, from the sensible and accidental (regarded by the empiricists as more real), to the more profound and more universal determinations of being, it discovers what is most real and most intelligible. The scientist and the metaphysician are on different planes of thought, they see what may be an object common to both each in a different light, and their thought-processes tend in different directions. The more clearly these two orders of knowledge are distinguished, not "separated," the better it is for both science and philosophy. Such a conclusion, however, is quite contrary to the thesis of Sir Edmund.²³

²³ The reader may be referred to the latest work of Professor A. E. Taylor, *Does God Exist?* (London: Macmillan & Co., 1947), as a timely antidote to *Space*

The prejudice against common experience seems to rest largely on the fact that such experience is linked inseparably to sense-knowledge, which is assumed to be totally subjective or at least untrustworthy. Without entering into the details of the Scholastic teaching on this point, we may observe that scientific experience is itself, for the most part, sense-knowledge aided and perfected by instruments, and if recourse is had to corrections made by "necessary rational interpretation," we cannot agree that purely mathematical or physical canons will suffice. The critical justification and investigation of sense-knowledge as such is a matter for metaphysics; and a particular sense-experience can be controlled and checked by reference to our total experience, including of course the activity of reason especially in its reflective function. It is an all too common mistake to regard ordinary experience as false because it is imperfect and inadequate. Experience may tell me, for example, that there is motion; if it does not tell me exactly what motion is, or what exactly produces the motion, it is not therefore false. It is my uncontrolled rational interpretation that may lead me to err, as when I interpret visual data as implying that the sun moves around the earth or that a stick in the water is really bent. Scientific considerations are undoubtedly necessary to correct many of the wrong interpretations of sense-data that have become rooted in the popular mind; but science cannot either question or establish the validity of experience as such.

The Platonist assumption of the supremacy of mathematics among the sciences (which again is a metaphysical problem)

and Spirit. This work also treats of the relation of science to philosophy as regards the existence of God, and stresses the need and independent validity of critical pre-scientific experience, or critical common sense, without which science itself is impossible. The author shows that the methods of science prevent it from treating of the problem of God at all. To identify scientific knowledge with knowledge as such, he points out, can result only in scepticism, as Hume's philosophy has shown. It is worth while, also, to refer to Professor Whitehead who sought to erect a philosophy upon a scientific basis, and who says, "I hold that the ultimate appeal is to naive experience, and that is why I lay such stress on the evidence of poetry" (p. 109). And, he further notes, "the survival of great poets is evidence that they express deep intuitions of mankind penetrating into what is universal in concrete fact" (p. 106).

can be supported only by reference to the degree of abstraction and the object of that science. The indications of the rank of a science are not certainty and accuracy, but rather, as Kant maintained, universality and necessity. On this criterion it should be evident that metaphysics is the supreme science of the natural order, for, despite what both Sir Edmund and Prof. Whitehead may think, nothing can be more universal than the object of metaphysics, nor can abstraction be carried further than the plane in which it moves. The certainty of all more particular judgments rests on the certainty of those first principles which metaphysics must formulate, explain, and justify. The object of mathematics involves quantity in so far as it deals with magnitudes, as beings between which there can in some way be given relations of equality, inequality or sum; its method is quantitative, since existence for the mathematician means no more than the possibility of being measured. Mathematics does not abstract from quantity, nor therefore from that matter which is implied in the concept of quantity. It assumes such notions as quantity, relation, measure, just as it assumes that science is possible, that some things—at least the mathematician—exist, that truth is to some extent knowable by man, that first principles are valid, at least in their logical use. Such assumptions are not justified by science or mathematics. Critical common sense does affirm them, but they can be guaranteed only by a more ultimate science whose object transcends the whole quantitative order and is inclusive of all being, and which is essentially independent of, since presupposed by, every other science.

“Even granted that the fundamental conceptions are metaphysical,” Sir Edmund insists, “they do not constitute knowledge until their content has been filled in from experience.”²⁴ In one sense this is an understatement, for without experience we would not even have such concepts; the Thomist is decidedly opposed to either the innate ideas of Descartes or the *a priori* forms of Kant. But if Sir Edmund means that experience is the full measure and sole foundation of the validity of

²⁴ *Op. cit.*, p. 11.

such concepts, then the Thomist joins with both Descartes and Kant in rejecting such a purely empirical theory. The mind is not an absolutely passive recorder of what happens in nature; it is active and a true source of knowledge. The data of knowledge are furnished by experience, but the necessary connexions between them and the concepts based upon them are established by the inherent power of the mind, which reaches beyond the actual event, or empirical qualities, to seize that stable and specific aspect of reality, grounded in the nature of beings, in their specific essences, between which, as also between essence and activity or properties, there exist necessary relations. This activity of the mind is known as intuitive abstraction, whose denial leads logically either to idealism or materialism, unless one is willing to accept the inconsistencies of the Kantian compromise. A judgment in which the sole reason for uniting the concepts is the fact that experience has revealed the actual concomitance of the two realities signified is an empirical and contingent statement of fact, not a scientific proposition. When the judgment is based, through experience, on the nature of the realities in question, a scientific, or universal and necessary, proposition is possible, on the assumption that the mind has this power of reaching the realm of essences of which the actually experienced qualities are a manifestation. Sir Edmund appears to recognise this metempiric attribute of the mind: "it must be recognised that as in the development of physics, the laws become more general and more perfect, they begin to reveal a natural and ontological order, transcending the range of experimental facts on which they were based. Thus it becomes possible to assert from pure theory the existence of effects previously unknown."²⁵ "Physical theory, then, is much more than a mere account of the course of observed phenomena: because the world is rational, the different effects are so interconnected logically that when we have found by observation a certain number of them, we can deduce the others by pure reasoning without making any fresh observations. Our reason is capable of establishing between abstract notions relations

²⁵ *Op. cit.*, pp. 96, 97.

corresponding to true relations between things: physics, at first purely descriptive, eventually becomes asymptotic to a metaphysics."²⁶ The same mind which is capable of rising from scientific factual experience to the vision of the general laws of physics is also capable of rising from ordinary experience to the vision of the general laws of being, though by different methods and in different orders of knowledge; and the former process is guaranteed only by the latter. This, again, is just the contrary of the empiricist position.

In asserting that modern science contradicts the explanation given by Aristotelian metaphysics of certain phenomena, Sir Edmund has in mind particularly the fact of motion as explained by the Scholastic theory of causality, and also the explanation of matter and design. A word in general is called for by a passage which is not free from a certain ambiguity: "it therefore becomes necessary to find a metaphysics different from that which has been associated with classical physics; for metaphysics must originate with reference to physics, since it is the conceptual framework into which our experience of Nature is to be fitted. The progress of science has destroyed the foundations on which the Newtonian natural philosophy has been grounded."²⁷ The Thomist fully agrees that the metaphysics associated with the classical physics and the natural philosophy of Newton and his followers must be rejected, for it is Cartesian mechanism, not Aristotelian metaphysics or cosmology, that has been linked with the now discarded physics, and it has been combatted from the start by the Thomist school. In fact, the new physics really began when Dalton turned away from the atomism and mechanism of the type advocated by Democritus and Descartes, and re-discovered a conception of material structure which had been expounded by both Aristotle and the Scholastics, that of the *minima naturalia*. The new theories are far closer to the Aristotelian position than to that of the later mechanists. The modern crisis, as far as regards matter, seems to consist essentially in this,

²⁶ *Op. cit.*, pp. 99, 100.

²⁷ *Op. cit.*, pp. 106-107.

that the old mechanism is incompetent to explain atomic phenomena; that bodies are no longer to be regarded as mere aggregates of particles in motion, but as organisms, with a unity and "self-hood" that are becoming more clearly defined as our knowledge grows. The return to Aristotle for a philosophy more in harmony with biological science has, in many cases, been explicit; the abandonment of scientific materialism and mechanism may lead to a similar return, through the concept of organism. Prof. Whitehead has aptly stressed this character of the actual crisis, and has founded his philosophy of organism upon this feature of reality. Sir Edmund seems to be on the way to some such concept when he describes individual electrons as absorbed in the unity of the whole "electronhood," and recognises that this must have important implications from a philosophical point of view. Far from contradicting Aristotle's theory on the principles of corporeal being, recent scientific research seems to find in it its most rational and obvious philosophical interpretation, with its duality of a principle of unity, activity and specific qualities, and a principle of limitation, divisibility and of diversity.

This does not mean that the Aristotelian can blandly patronize the scientist, as if claiming that he knew all the time what science would eventually discover, and that the intervening centuries of patient and persevering research could have been spared if only the physicist had heeded the philosopher. Science has revealed new worlds of which the philosopher had no inkling. Thomists have long endeavoured to show how scientific discoveries do not conflict with but rather lead to those principles which they have established by the aid of metaphysics. They are now faced with the task of the further specification of their principles in the light of the new experience afforded by science. Even if these principles were associated in the past with demoded physics, and with erroneous sense-notions, it would not be true that such physics or errors of sense were the motive for asserting philosophic principles. St. Thomas, for instance, using the physical notions of his time, analysed physical change as involving primary matter and

substantial form, together with certain disposing qualities, which he described in terms of heat and cold. The accurate determination of such qualities, in terms, for instance, of positive and negative charges effecting heterogeneous elements, does not affect the philosophical principles involved, an advance may be made in regard to what we may call the mechanics of change, its actual physical realisation. Sir Edmund justly points out that "a correct mathematical solution of a phenomenon does not necessarily furnish the correct physical description of the phenomenon, that is to say, the specification of the actual physical mechanism by which the phenomenon is produced."²⁸ The philosopher would say precisely the same of his science in relation to both mathematics and physics.

* * * *

Many of the objections brought forward by Sir Edmund against the Aristotelian theories of motion and causality are at least partly answered by applying this distinction, for such objections consider principally the specification of the actual physical mechanism of motion and causality: transference of movement from a billiard cue to a ball, of heat from fire to surrounding objects, passage of an electric current, radio-activity. On such matters of fact, which regard the physical conditions involved in an actual occurrence, and concerned with enumerating and describing the immediate agents which enter into play, the metaphysician has nothing to say. In general, we may state the position thus: the metaphysician considers motion as being, in the light of the transcendental elements implicated; the natural philosopher considers motion precisely as motion, in its various forms, in reference to its specific constituents. If, for example, we consider a particular kind of motion, such as growth, we infer that it presupposes a certain passivity in its subject, which, in turn, implies a passivity in the essence of that subject. The explanation of that essential passivity in terms of being pertains to metaphysics; its explanation in terms of the ultimate essential (intrinsic)

²⁸ *Op. cit.*, pp. 56-57.

principles of the subject pertains to natural philosophy. The determination of the immediate passivity in the subject likewise pertains to philosophy, whereas the determination of the precise physical mechanism of the change is a matter for scientific experience. The natural philosopher is enabled to discover his principles from the general facts of universal experience, such facts, in practice, as substantial change, continuous (molar) extension, sensible qualities, motion, life, and numerical multiplicity in specific identity. Such philosophical inquiry and common experience do not suffice to determine for him the actual extension of such facts in the concrete, for instance, whether such a rudimentary being has plant or animal activities, whether such a surface is really continuous. This latter data can be furnished only by science, but the notions themselves are knowable independently of science. The Aristotelian does not "attempt to deduce physical consequences from metaphysical reasoning"; only science can inform him of the actual extension and application in detail of his principles, and even if it were established that "much may have been found in the last three centuries to be inconsistent with Aristotle's conclusions," nothing has been found that is inconsistent with his principles.

It is clear that there is an intimate relation between natural philosophy and physical science, since philosophy is based on experience that is purified and elaborated by science. Some Thomists, though a minority, even maintain that there is no specific distinction between natural philosophy and physical science,²⁹ from which it would follow that natural philosophy is impossible without scientific experience; the majority, however, maintaining the specific distinction and the essential independence of natural philosophy, fully recognise that without such experience natural philosophy is imperfect. But even if we were to grant that the two sciences were not specifically distinct it would not follow that metaphysics is dependent on physical science, unless one were to maintain, with Wolff, that

²⁹ Cf. "Scientiae et Philosophia secundum S. Albertum Magnum," *Angelicum*, 1936, pp. 24-59.

cosmology is a branch of metaphysics, a confusion which no Thomist will admit. Metaphysics is aided by, and has much to learn from science; it depends materially and instrumentally upon science, and, particularly when dealing with the proofs for the existence of God, it must take into account the findings of science. There is, however, a formal and essential dependence of metaphysics on the physical sciences. Sir Edmund seems to think that since metaphysics deals with being as such, it must deal with all being, under every aspect. If this were true, his thesis would be more tenable; but surely he will recognise the difference between dealing with being precisely as being, as abstracting from all particular modes of being, and dealing with being as this or that form of being, just as he recognises those sciences as different which deal with an object in so far as it is good, or living, or measurable.

The metaphysician, then, will not attempt to specify the actual mechanism by which motion is transmitted, as in the examples given above, but having studied what the scientist has made known, he will feel it his duty to pronounce on the interpretation of such facts in so far as it has a bearing on his principles, or to protest against a misstatement of his own theory. We are told, for example, in such misapprehension of philosophic principles, that the Aristotelian teaches that an agent arouses movement in a movable object by reducing a movement which is already in the object, though in a state of potency, to an actual state.¹⁰ On the contrary, the scholastic, in asserting that an object is in potency to motion, means that the motion does not exist in the object, that which is in potency to a perfection does not possess it, but has a capacity to possess it, to receive an act from another.¹¹ Sir Edmund sees a contradiction between modern science and Aristotle, in so far as the

¹⁰ Sir Edmund Whitaker, *op. cit.* p. 71.

¹¹ As an example of Thomson teaching in this point, we may quote St. Thomas, who is commentary on the *Summa Theologiae* of St. Thomas (III, q. 18, a. 2, ad 1um). "When a form is said to be reduced from the potency of the subject, this means that a subject which was in potency to that form comes to possess it actually through the activity of an agent in such a way that the form depends on the subject in its existence and conservation."

philosopher teaches that motion cannot pass from one body to another, whereas science shows that it does. But the contradiction vanishes once we define carefully what we mean by saying that motion passes from one subject to another. Aristotle affirms that the motion in the object that moves is distinct from that in the object that is moved; and it is difficult to understand how that can be denied, since the two motions can coexist simultaneously, just as one can cease before the other. That does not mean that one does not move the other; "it is simply ridiculous," says St. Thomas, "to deny that a body acts, for the reason that an accident does not pass from one subject to another."³² By saying that motion is communicated, we do not mean that it flows from one object to another. The tea from the pot to the cup; we mean that the activity of one body is the efficient cause of the motion of another, and is therefore distinct from it, as the efficient cause is from its effect. The object moved may receive a transient sharing in the efficiency of the mover, in the form of an impulse (or its *mechanica*, as scientists have called it), such as that in a separated moving object, but this impulse is not motion, since it is its efficient cause. To use Sir Edmund's own example, neither the motion of the billiard cue, nor the impulse communicated to the ball are the motion of the ball but its efficient cause. This is the distinction which he has overlooked, and which enables us to see that the contradiction in question is only imaginary.³³

Moreover, Sir Edmund treats the Occamist criticism of the principle *quidquid movetur ab alio movetur* as valid. Furthermore, considering the way in which Sir Edmund conceives analogy, it is not surprising to find that the word "give" of

³² III *Con. Gent.*, c. 69.

³³ Causality implies that the nature of the agent has at least the power of retaining whatever perfection it in the effect; that perfection may, moreover, be present in the agent in its proper and specific mode of being (formally, or as included in a higher perfection eminently). The agent of local motion does not possess either the motion or the act of the relation which it causes, except virtually and eminently. To cause a relation one does not have to possess it; it is a reality which is "given" or caused in a way carefully explained in metaphysics.

the famous phrase *nemo dat quod non habet* is regarded as a mere metaphor. But giving, in so far as it includes causality, is, like causality, an analogical notion, and is realised in many intrinsically differing ways; and as invoked in the explanation of that principle it has a very definite sense that is far from metaphorical. An agent must be in act, not in order to give what it possesses, but in order to be able simply to act; it must be in a state of perfection (that is, of actuality) not inferior to that of the effect, which is, by definition, dependent on its cause. Since the activity of beings springs from their nature, it follows that the agent must be by nature at least in that state of actuality or perfection that is required to explain the effect. We can, however, abstract from this notion of giving in explaining the principle which Sir Edmund can not accept, and which is really the principle of efficient causality. It is asserted that a body in motion has no need of a mover distinct from itself. Yet, a moving body is different from one that is not in motion; it has something which is not of the essence of body as such but of which bodies are capable. We call that something "perfection"—which is also an analogical notion, and does not stand for moral or aesthetic perfection alone—because it pertains to the order of activity. A moving body is a continued union of two distinct realities, body and motion. But two distinct realities of themselves, are not one, neither do they form a unity, nor remain united, and this is true, not only of motion, but of the *vis motrix* to which Sir Edmund refers as "an attribute, or quality or 'accident.'" Even such humble realities are real, and have to be explained. The proper cause of union or unity is one thing, one agent that, by its action, can either effect or, if need be, maintain that union. The continued union of elements that are of themselves diverse thus postulates the influence of a distinct cause, the *ab alio* of which the principle speaks. This is but one statement of the "*a priori* reason" which Sir Edmund seeks in vain; it is a reason based upon the principle of non-contradiction which, contrary to his opinion is valid of reality as of thought, for it is centred on the notion of being, and is verified wherever there is being, whether in the mind or in nature or in God.

In place of the out-moded traditional explanation of causality we are given a new formulation, in accord with the data of modern science. "Aristotle's notion of cause has been replaced in modern physics by the concepts of mathematical law and predictability."³⁴ This statement reveals at once both the essence of the new idea of causality and its radical defect. The causality in question is that which is taken into account by science, and that is not the ontological causality with which metaphysics is concerned. One can not overemphasize the importance of this distinction; its neglect leads to much of the gross confusion we find in modern thinking. The causality of which metaphysics speaks is concerned with a dependence in being of one reality upon another, a dependence based upon an activity whose term is in the order of essence and existence, and whose source is ultimately (prescinding from God) substantial. These notions, as such, do not enter into the object of science, which deals with the empirically observable, and for which causality is restricted to the succession and coexistence of phenomena. Under this aspect, the cause is held to be that of several phenomena which experience identifies as invariably being antecedent, and as being related according to quality and measure to certain definite concomitant phenomena. Consequently, the law of causality, for science, has regard to a stable and uniform manner of acting in observable and measurable entities; in one word, causality, for the scientist, is little more than observable uniformity.

It is evident that such causality—let us call it empirical causality—was admirably adapted to the mechanistic explanation of nature; the analytical mechanics of Descartes, for instance, or Laplace, was essentially based on the uniformity of action of those identical ultimate elements of which reality was held to be composed. Such uniformity, given adequate knowledge of the factors involved, would be a basis for complete predictability, such as Laplace considered to be, in principle, possible. It is this causality, in so far as it involves uniformity and predictability, that has been rejected by recent

³⁴ *Space and Spirit*, p. 19.

science; the "crisis" of causality among scientists today is totally confined to this integral element of the mechanistic system. That ontological causality does not enter the dispute at all is clear from the fact that such causality is impossible in a mechanistic interpretation of nature, which denies the activity of bodies, and retains only local motion which, in some mysterious way, is associated with matter and is made to account for both substantial and qualitative change. When, therefore, Sir Edmund makes such statements as "while the word *cause* was in process of banishment from physics, the postulate of causality was also undergoing a revolutionary transformation"³⁵ we must bear in mind that the causality in question is that which had hitherto been accepted in physics; to argue from the need of revising or rejecting such causality in the light of modern science to the need of revising metaphysics or the causality of which it treats betrays a complete misunderstanding of the metaphysician's position.

Similarly, the new concept of causality proposed by Sir Edmund is still a purely empirical notion; it requires little reflection to see that it neither replaces metaphysical causality nor contradicts it. The "revolutionary transformation" results in a causality distinguished by two attributes. Since the new science deals with quantitative phenomena, as observable and measurable, in their succession, the causal relation of mechanism is to be replaced by a mathematical relation, in so far as the relation between cause and effect must be capable of representation by mathematical formulae; in other words, the law of causality must be a mathematical law. The concept of cause must moreover be defined in terms of observational procedure; and under this aspect predictability is, for the physicist, "the essentially valuable content of the notion of causality."³⁶ The completely empirical nature of this new concept is evident in the revised statement of the principle of causality: "the physical universe is a closed system, the succession of whose changes in time is, in principle at any rate,

³⁵ *Ibid.*, p. 89.

³⁶ *Ibid.*, p. 90.

completely predictable.”³⁷ This is, manifestly, the same conception of causality as was current among the mechanists; such causality can no longer be maintained, in the light of recent experience; hence, we are asked to conclude, the principle of causality, as such, must be rejected.

Before we examine this position in more detail, let us trace the thread of our author’s argument. In the seventeenth century the (mechanistic) physicists rejected the Aristotelian notion of causality, and set about constructing their own idea of (efficient) cause, as involving predictability and the possibility of representing the relations between phenomena mathematically. It was held that such predictability was possible with certainty, at least in principle. The physical consequences of the new quantum theory, particularly as formulated in Heisenberg’s principle, reveal that predictability is not possible with certainty, even in principle; that at most we can hope for statistical probability, where intra-atomic entities are concerned. Hence “a careful analysis, by the aid of the new science of quantum-mechanics, of certain phenomena in atomic physics, has shown that the principle of causality is not universally valid . . . there is a genuine indetermination, a failure of the postulate of causality.”³⁸ This is indeed a strange argument to invoke against the Aristotelian principle of causality! Aristotelian causality was abandoned by the physicists for a new notion of causality, which has now been proved false; hence the Aristotelian notion is false! We may acquit Sir Edmund of this glaring *peccatum logicum* only if we are to assume that he takes the seventeenth century rejection as justified.³⁹ He certainly does not give reasons to justify it; his rea-

³⁷ *Ibid.*

³⁸ *Ibid.*, pp. 110, 111, 112.

³⁹ Perhaps Sir Edmund feels that he is not bound by traditional logic which, he asserts, is based on the principle of excluded middle, and which Brouwer has rejected, to set up a “three-valued logic” in which there is no “stark antithesis” between true and false, since “true” can mean only “verifiable.” But, whichever of the three admitted values be finally assigned to a given proposition, surely that value either does or does not qualify that proposition, and a statement to that effect is either true or false. Similarly, of a given argument, we can decide whether it is logical or not, independently of its truth or falsehood.

sons, if they prove anything, prove that a metaphysics of causality erected on a scientific basis has now been disproved. This is hardly the strongest argument to adduce in favour of founding metaphysics on science. And we may refer to yet another inconsistency, which will become more apparent later on, in the inexplicable assertion that the Second Way, when restated, is valid, although Sir Edmund expressly recognises that it is based on causality, which, however, as we are now told, has been proved by science not to be universally valid.

The Aristotelian would certainly agree that the notion of causality concocted by the physicists is not his; it is merely a restatement of the empirical causality of the mechanists, and, in fact, is framed in terms that are utterly inadequate to express real causality. "Evidently the notion of a causal nexus, as affecting the relations between objects, has now completely disappeared, and has been replaced by the notion of a single entity governing the whole of existence," an entity which is Hilbert's "cosmic mathematical function."⁴⁰ We are not told how this abstract function has been verified or "filled out by experience," or empirically observed, to mention Sir Edmund's criterion of truth; but to define causality in terms of mathematics is precisely to deny causality, for a mathematical equation is an affirmation of identity, and where there is identity there is no causality, which involves novelty and distinction. One would have thought that, after Bergson's devastating criticism of the mathematical and spatial representation of movement, the scientists would by now have recognised the purely empirical and symbolical value of their statements regarding motion and causality.

This symbolic value becomes fully apparent when we examine the notion which the physicists have selected as being most characteristic of causality, namely predictability. This notion is essentially relative and subjective; it refers to one who can predict; it is a relation between the investigator and some fact, not a relation between cause and effect. The possibility of certain predictability has now been denied by science,

⁴⁰ *Space and Spirit*, pp. 88-89.

and has been replaced by that of statistical probability; and we are asked how this fits in with the principle of causality. The answer is that this has no bearing at all on causality; at most it would involve our knowledge of the physical embodiment of one instance of causative action, that of natural and necessary causes. The fact that I cannot predict an event does not mean that such an event is not caused, as Sir Edmund so often assumes; just as the fact that a mathematical formula can predict an event does not mean that the formula is its cause, as must surely be evident to all. This confusion between knowledge and real causality underlies the whole treatment of the subject, and is a conspicuous example of muddled thinking. We read, for instance, that Einstein's theory has done away with the concept of force, and that now we know that "a free particle moves in a path determined solely by the curvature of space."⁴¹ If the curvature of space is a reality, then it, and not Einstein's theory, may determine the path of the free particle; but the real question, from the causal point of view, is: what determines the motion of the particle? why does it move at all, whether in a free or in a determined path? The motion is taken for granted by the physicist, and rightly so, for he is concerned with how a thing moves, not why it moves. Yet it is just this question "Why?" that is of interest to the philosopher. He is concerned to explain the fact of motion, its existence, its causal implications, and the principle of causality enunciates these implications. So far from denying causality, the unpredictability invoked against it actually implies it, for it refers to the future motion of real elements, to real motion which requires a real cause, whatever the state of our knowledge of the conditions of its production.

Much the same must be said with regard to the indeterminacy which some physicists hold to be inherent in natural phenomena, thus interpreting Heisenberg's principle, even though such indeterminacy is understood in an objective sense, and not merely in relation to our present methods of observa-

⁴¹ *Ibid.*, p. 103.

tion. At times the scientists seem, from their way of speaking, to identify indeterminacy and unpredictability. The law which scientists formulate regarding the flow of heat along a metallic rod is, of course, a purely empirical one, based on induction and experiment, and is now regarded as only a probable statement about the behaviour of an average particle. But the fact that our knowledge of the behaviour of such a particle is uncertain does not mean that the particle's activity is not determined or caused, any more than our success in establishing a general empirical law entitles us to regard that law as the cause of the activity in nature. If, to take another of Sir Edmund's examples, we are unable to predict which of the myriad atoms that constitute a tiny portion of radio-active substance will explode at a given instant, whereas other surrounding atoms may remain unchanged for years, this does not mean either that the explosion is not caused, or that it is indetermined. Such conclusions could only be justified on the assumption that our knowledge is perfect and absolutely adequate to reality, including full details of every single fact included in any event.⁴²

⁴² It was the general conviction of the scientists of the Renaissance and of the founders of the classical physicists, such as Galileo and Descartes, that our knowledge was in fact perfect and adequate, and that its supreme expression was in mathematics. These two premisses led inevitably to the mechanistic view of nature, which in turn furthered the tendency to identify knowledge as such with sensitive knowledge, obtained by experiment and observation. The positivism of this attitude remains among the majority of modern physicists, but the belief in the adequacy of sensitive knowledge has been abandoned, and this seems to be the essence of the present crisis in science; it is a crisis regarding the nature of our knowledge of the external world, not the nature of the world in itself. Heisenberg's own statement of the principle of causality is a good confirmation of this. He writes: "An der scharfen Formulierung des Kausalgesetzes: wenn wir die Gegenwart kennen, können wir die Zukunft berechnen, ist nicht der Nachsatz, sondern die Voraussetzung falsch. Wir können die Gegenwart prinzipiell nicht kennen lernen." (*Zeitschrift für Physik* 43, p. 197.) As is evident, this statement of the principle of causality is couched entirely in terms of knowledge and predictability; and as thus stated, the principle is not denied. What is denied is the possibility of applying this principle to a definite natural event; and the reason is that we are unable, by our sensitive knowledge, to know fully the elements of the present situation of an event. If the only knowledge of which we are capable is sensitive—as is gratuitously supposed by the positivist—at most we would be entitled to state that we cannot establish the fact of determinism in nature. Those who postulate the validity of intellectual intuition, demonstration, and common

There was a time when men regarded their knowledge in this way, but they are assuredly more humble now, when every increase in knowledge seems to open up greater mysteries and to indicate limits beyond which we may not hope to pass.

Many thinkers regard the so-called objective indetermina-
tion of natural processes as precisely such a limit set to our knowledge. Theory after theory, constructed to represent the nature and inter-relation of the intraatomic elements, has been discarded, until we have now arrived at the point where we have to invoke two seemingly irreconcilable systems to cover all known aspects of atomic activity, and to take refuge in a mechanics which limits itself to evolving mathematical formulae that abstract from the nature of the realities involved. The indetermina-
tion theory is born of the necessity of conceiving the atom, not as a planetary system of individual corpuscles, but as a vibratory system which, though certain facts still seem to require the corpuscular theory, is a complex of waves of different frequencies in which the individuality of the component vibrations is merged in the global character of the whole. The necessity of associating a wave of a determinate frequency with a corpuscle means that we can no longer regard the corpuscle as individual, that is, we can not explain atomic phenomena in terms of the old mechanics. The impossibility of determining simultaneously the position and velocity of an electron seems, therefore, to be equivalent to the impossibility of regarding the electron as an individual; if it cannot be so regarded, then the attempt to assign determinate velocity and position to it is nothing more than an extrapolation from macroscopic physics. Indeterminism would then be a question, not of the character of objective events, but of the ineptitude of concepts pertaining to macroscopic physics to describe events

experience may, and do, affirm the existence of determinism in nature. Even the physicists of positivistic tendency, such as Heisenberg himself, admit that after an event we can determine its precise cause, although we are unable to predict the event, thereby clearly distinguishing the fact of objective determinism and causality from our imperfect subjective knowledge of the physical factors involved. Cf. P. Hoenen, S. J., "De Principio Fundamental Neo-Positivismo," *Acta Secundi Cong. Thomistici Intern.* (Marietti: Turin, 1937), pp. 367-374.

of the intra-atomic order. Such is the view of the noted French physicist, Paul Langevin,⁴³ among others.

An interesting example, given by Sir Edmund himself, may illustrate this point, though in a sense different to that which he intends. "If we wish to define at what instant of time a pure musical tone is sounded, we find that the more instantaneous we make the note, the less pure is its tone, since we approach a period of time so short that in it a single complete oscillation cannot take place." The two requirements, that the sound should be emitted at a definite instant and that it should be of a definite pitch, are incompatible with each other. One should not attach too much importance to an example; but if this example is a fairly accurate instance of the difficulty confronting physicists, then the question is resolved into that of the impossibility of considering a successive reality as instantaneous, that is, of describing one order of reality by concepts applicable only to another order. Sound is essentially a successive phenomenon, which involves a definite amount of time; if we do away with the time required, obviously sound is no longer possible. Here again we meet the imaginative and quantitative treatment of reality which is legitimate in mathematics, but which does not necessarily imply an objective correspondence. The mathematician may regard sound as composed of atoms of vibration, or matter as composed of ultimate individual particles; whether such ultimates exist in the state imagined is a very different question. There may be an ultimate of division, beyond which the specific nature of the reality in question is no longer possible. That is what the Scholastic theory of *minima naturalia* asserts, and what modern science seems now to confirm. Individuality (in a specific nature), whether in biology or in physics, seems to require a certain state of organisation and complexity, below which the composite elements cannot be regarded as individuals. Modern science will no longer allow us to regard electrons and other intra-atomic entities as individuals, at least when they are not

⁴³ *La Notion de Corpuscules et d'Atomes* (Paris: Hermann, 1934), pp. 3 sqq.

free.⁴⁴ We do violence to nature, and are guilty of extrapolation, if we continue to apply to them notions which are based on individuality, such as determinate position and velocity. The crisis of modern science means that we must modify our conceptions, and cease to speak of individuals where nature does not affirm them, that is, we must modify the conceptual framework which we have acquired through centuries of acceptance of mechanical physics. It does not mean that we must renounce determination in nature, or the principle of causality, which, if anything, was rejected by the physics which is now itself being rejected.⁴⁵

The interpretation of Heisenberg's principle in the sense of the objective indeterminism of nature is far from generally accepted among scientists themselves, and it is often limited, if not denied, by other fundamental assumptions of those who maintain it. In this study we may limit ourselves to certain assumptions and reservations made by Sir Edmund, who seems prompted thereto by that common sense in which he has so little faith. He admits that "although the time of the explosion of a particular radium atom is unpredictable, it must not be supposed that there is a complete absence of law in connection with the phenomenon." This law is surely the law of causality; and the fact that it "becomes manifest only when we consider a finite quantity of a radium salt containing many billions of atoms" does not mean that the law begins to hold just when it becomes manifest to us, particularly when such "manifestation" means capacity to be covered with certainty by a mathematical formula on the basis of empirical procedure.

⁴⁴ In Scholastic terms, such intra-atomic elements, when within the atom, would be described as elements present *in virtute* or *in potentia*, that is, not as separate individual entities but as physical elements of a substance, capable of being released (and thus acquiring individuality), which retain certain of their individual characteristics, such as weight, radio-active properties, and associated with an energy which is greater (e.g. in the nucleus) according as the potency involved is further from act.

⁴⁵ Cf. C. Giacon, S.J. "Le Difficultà della Fisica Moderna a l'Idemorfismo," *Acta Secundi Congressus Thomistici Intern.*, pp. 311-319; on p. 316, he quotes, in support of this interpretation, Langevin, De Broglie, Thomson, Carelli, Bavink—among others.

Definite order in nature is most surely an evidence of determination, and nothing is dearer to the mathematician than that rigid and unchangeable order without which his science is impossible. The philosopher would not be satisfied to accept such mathematical order (which regards quantitative abstractions) as proof of the existence of real order in nature. Yet he is glad to find a mathematician stating that "as, in the development of physics, the laws become more general and more perfect, they begin to reveal a natural and ontological order, transcending the range of experimental facts on which they were based" and "physical theory, then, is much more than a mere account of the course of observed phenomena: because the world is rational, the different effects are so inter-connected logically that when we have found by observation a certain number of them, we can deduce the others by pure reasoning without making any fresh observations. Our reason is capable of establishing between abstract notions, relations corresponding to true relations between things: physics, at first purely descriptive, eventually becomes asymptotic to a metaphysics." He further recognises that "the laws of nature are not the causes, but the representations of order," so that, in admitting that there are at least some laws of nature, he will admit some order in nature. Finally, his treatment of the Fifth Way makes it clear that he accepts the fact of a universal order in the universe, an order that is even better attested than that which St. Thomas took as his starting-point; and if, as Sir Edmund holds, this proof leads to the real existence of God, such order is not merely the subjective order of a science, but the order of nature in itself, which involves both determinism and causality.

* * *

Sir Edmund's presentation of St. Thomas' five proofs for the existence of God is on a par with his metaphysical notions of Aristotle; there is little evidence of any understanding of the meaning or implications of the arguments. This is not surprising, for one does not expect a busy professor of mathe-

matics to be an expert in metaphysics, and these proofs are supremely metaphysical; yet one may reasonably expect that an author who sets out to discuss the value of these arguments should first fully appreciate the position which he examines. If he chooses to deal with metaphysics, he must be judged as a metaphysician, not merely as a mathematician. The temptation to be glibly superficial is especially strong with regard to the five ways, which are so well known and so much discussed, and refer to the most important of all problems, one in which all men have a vital interest. The apologists are somewhat to blame for this condition, and they offer St. Thomas a very dubious service in presenting his arguments as they stand in the *Summa*. The *Summa* is a summary, and its contracted forms of argument suppose a whole metaphysical background which St. Thomas could with more right suppose among his immediate readers than the modern commentator can. Each word in the arguments supposes a whole train of thought, a mental orientation, which can now be acquired only after years of thought and study. To appreciate the full force and significance of these proofs we have to recapture, as far as is possible, the mentality of St. Thomas, to understand them as he did. That they were valid for him only in so far as they had meaning for him is obvious; to understand them in any other way, and to deny their validity, may be an interesting logical exercise, but it is not a refutation of his proofs.

The Thomist seeks to penetrate to the meaning these proofs had for St. Thomas, by seeing them in the light of his general system, by examining each notion involved, each principle, as St. Thomas explains them elsewhere at length. St. Thomas himself gives us an example of such interpretation (it is also a warning) with regard to the first way, as stated in the *Summa Theologica* and investigated at length in the thirteenth chapter of the first book of the *Summa Contra Gentes*. This most obvious of exegetical directives seems to be quite neglected by many who treat of the five ways. Its importance may be illustrated by an example from physics. If a physicist sets before me the Einsteinian formula $E = mc^2$, and tells me that the symbols

stand for energy, mass and the speed of light, I, as untrained in physics, may understand what the formula says about the energy of matter, but I will not thereby understand the formula. That would require a whole background of training and experience, proper to the mathematical physicist.

There is, indeed, some justification for approaching St. Thomas' five proofs without philosophical preparation since they are but metaphysical formulations of arguments which are the spontaneous reasonings of the human mind, and are capable of being grasped, in their essentials, by the untrained mind. Man did not have to wait until the thirteenth century to begin to reason to the existence of God; the original reasoning is distinct from the speculative elaboration and foundation provided by St. Thomas. Man can, through the natural power of the intellect possessed of self-evident first principles and notions (derived by means of intuitive abstraction) reason almost instinctively from the evident general facts of experience to the existence of a transcendent cause, which he admits with certainty; ethnological research has revealed that the most primitive people of which we have record did, and do, recognise the existence of one supreme Being, as cause of all things. If this conviction be based on reason (and it would be difficult to prove the fact of revelation whether primitive or traditional as its basis) it is certainly not founded on Thomistic metaphysics; and St. Paul, in the famous passage to the Romans, seems to have been referring to this native power of the human mind to reason from visible creatures to the existence of God. The speculative justification and detailed exposition, step by step, of such reasoning, in its various forms, in its implications and assumptions, is a very different thing. The man in the street may be certain that God exists, and that from reason alone; he may not be able to justify this conviction, to answer objections or to explain his certainty. If this is what Sir Edmund means, we may grant that "a purely metaphysical proof of the existence of God is of little value for the practical purposes of apologetics, since most men will always be more ready to believe in God than to believe in any system of meta-

physics. In fact, it may be said broadly that nobody ever believed in any type of metaphysics leading to theism who did not believe in the theism before he believed in the metaphysics." ⁴⁶ But this is far from meaning that the metaphysical elaboration given by St. Thomas is either useless or impossible.

Sir Edmund agrees that we must distinguish between the arguments as such and their Thomistic justification; and it is obvious that in a different metaphysics these arguments would have an entirely different value, such as they have for Kant, for example. Having contested the validity of the Thomistic interpretation, which is based on the principle of efficient causality, Sir Edmund proceeds, in the last part of his book, to restate those proofs which he considers valid, in the light of the new metaphysics grounded on physical science. We must be content to state his position, and to point out in what way it appears to be defective or to misinterpret the Thomistic position.

The first way is rejected outright, as based on the principle that whatever is moved is moved by another (*omne quod movetur ab alio movetur*) which, as we have seen, is held to be at variance with the findings of modern science. The third and fourth ways are set aside as involving notions which are highly debatable and as not starting from the material world with which science deals. Does the scientist, in passing over these proofs, mean to imply that, since they involve realities beyond the scope of science they therefore pertain to a branch of knowledge which is independent of physics? This interpretation hardly seems allowable, and so we must take it that these proofs are regarded as invalid. It seems strange to the philosopher to find scientists proclaiming on the one hand that contingency (the starting-point of the third way) is doubtful, and, on the other, that the laws hitherto considered necessary should be regarded as no more than contingent. It is also difficult to believe that any man can seriously regard himself, in his existence, as necessary, and can therefore doubt about his contingency. As to the fourth way, the perfections from which

⁴⁶ *Op. cit.*, p. 68.

St. Thomas starts are not the exclusive property of spiritual beings; many of them belong to material things, and qualify that world of which science treats. The puerile objection that the argument from participation does not hold with regard to such degrees of reality as a more or less perfect sense of humor, or that it is confined to moral perfections, makes the Thomist shudder. The examples given by St. Thomas (the good, the true, the movable) might at least have suggested that he was not treating of every thing, nor even of every perfection, but of a very definite kind of perfection, familiar to the metaphysician, but evidently not to the physicist.

From the ruin of the Thomistic edifice a portion is saved; the second and fifth Ways, "corrected and purified in the light of science," are held to be valid, and even more cogent than in St. Thomas' presentation of them. It is mystifying, as we have already remarked, to find Sir Edmund maintaining that science has definitely disproved causality, and now that these two proofs, based on causality, are valid. Each of the five ways is based on the principle of efficient causality; the only way we can know anything of God, St. Thomas points out in the *Summa*, is by arguing from finite beings (which reveal themselves as effects) to their cause.⁴⁷ If the principle of causality did not hold for the other proofs, neither would it hold for these two. The proofs differ principally in starting from different universal and evident attributes of finite being in its actual existence; the same principle of causality, with its corollary on the ontological insufficiency of a series of uncaused causes, is invoked in each proof. If the first way is rejected because it involves this principle, then all five ways must logically be rejected, as they have in fact been rejected by all who regard the Kantian criticism of causality as valid.

Sir Edmund feels that science has strengthened the argument from the "order of efficient causes" (not from "causality" as he calls it) by establishing the fact of creation, of the absolute beginning of the universe in time. St. Thomas, it may be observed, taught expressly that a proof based on

⁴⁷ *Summa Theol.*, I, q. 2, a. 2, ad 2um.

the assumption of the eternity of motion was more efficacious than that based on the assumption of a beginning in time (to be exact, *with* time) since it is less evident that such a universe should have a cause.⁴⁸ And while we are grateful that scientists are beginning to return to the hitherto derided idea of creation, or at least to cease ridiculing it, we cannot agree that science has afforded proof of the beginning of the universe. The arguments from astronomy and nuclear physics suppose an immense extrapolation beyond the limited experience on which they are based to regions of space and time beyond our experience, and suppose that the laws of nature operate always and everywhere, in the unobserved past as in the unobservable future, in the manner indicated by our present knowledge. Such conclusions transcend the scope of science which claims to be guided by experience alone; they are particularly suspect in a scientist who has replaced causal law in the universe by indeterminism and uncertainty, and will allow no more than probabilities based on statistics, which, we presume, are founded on definite experience. For the philosopher there is no inherent impossibility in conceiving God as renewing the universe periodically from all eternity, or as creating fresh sources of physical energy, just as He continues to create souls which are sources of spiritual activity. The weakness of arguments such as these, based on science, is a strong confirmation of our thesis that metaphysics must be, as it has in the past been, independent of, though not indifferent to, physical science.

St. Thomas, in his Second Way, so we are told, "supposes these chains [of causes] to extend, link after link, until they find their terminus in God." This is far more like Kant, in the third and fourth antinomies, than St. Thomas. The terminus of a chain of causes is, as Kant remarks, part of the chain; and the whole point of St. Thomas' argument is that, whether the chain be infinite or not, either numerically or temporally, the whole chain is insufficient, and demands a cause that is out-

⁴⁸ *I Cont. Gent.*, c. 13. The interpretation here of that rather obscure text is suggested by the parallel treatment in the *Summa Theologica* (I, q. 46, a. 1, ad 6um).

side and superior to it, a cause which is not in any way part of the chain (which is supposed to consist of causes that are themselves caused) but is an uncaused cause. That is what "first cause" means for St. Thomas; and the impossibility of an infinite regression means simply that it is necessary to admit such a cause, whatever may be conceived to be happening to the chain "at its remote end." It abstracts altogether from such temporal considerations as "does [the chain] continue backwards to negative eternity, or does it terminate at some definite epoch in the past?" Sir Edmund thinks that science has answered these difficulties, and thus validated the proof, by indicating a definite epoch in the past as the temporal origin of causality, whereas St. Thomas insisted that the proof was valid even if creation were from all eternity. Thus Sir Edmund's difficulty is not a difficulty at all. There is no question, in this proof, of going back in time, as an essential part of the argument. A cause need not necessarily precede its effect in time, as St. Thomas so often points out; in this proof we are concerned with an effect produced now, in this instant, by a series of subordinate causes acting in consort now, in this instant, what we may call a vertical series as distinct from a horizontal one extending into the past.

Sir Edmund might have avoided this all too common misinterpretation had he realised that St. Thomas is not here starting from the existence of things but from the activity of a causal series actually producing an effect. The ingenious attempt to justify the proof against the difficulty that the series may be a re-entrant system, by showing that the time factor involved in the transmission of activity ensures that the series be strictly monotonic is unnecessary and beside the point. The series is secured against re-entry on metaphysical grounds, in that a cause which is subordinate to a higher cause with regard to a definite activity (and therefore, to that extent, in potency) cannot be simultaneously superior (or in act) to that or any other higher cause in the series. The circle from which Sir Edmund would save St. Thomas is a vicious circle. Yet that circle is not in St. Thomas' argument, but in Sir Edmund's

own statement of it. St. Thomas mentions the heavenly bodies when stating the proof in the *Compendium Theologiae*, from which Sir Edmund concludes that "his argument is completely bound up with the discredited Aristotelian physics, and cannot now be accepted." But St. Thomas expressly gives such instances merely as examples; and even though these examples may be faulty, the validity of the proof would be affected only if it had been proved that there were in nature no examples of subordinate causation, that is, that there was no such thing as subordinate causation.

This new statement of the second way removes it from the metaphysical plane and places it in the changing world of physical notions; it temporalises the proof, thereby changing ontological dependence into regression into the past, where it can at most lead to a given instant of time, to a beginning in time. The philosopher would not even admit the necessity of such a first instant or the cogency of the arguments used to prove it; the scientist would rightly be asked to point to an evident example of a series leading back to that instant. From the first instant, or the first cause *in* the series, there is a very big leap to the First Cause of the series, God, and it is a leap that can be rationally justified only by metaphysics. The second way of Sir Edmund leads back to the second way of St. Thomas, without which Sir Edmond's way is invalid as a proof of the existence of God.

Throughout the treatment of the fifth way there is a confusion between two aspects, or formulations, of the proof as given by St. Thomas. In the *Summa* he starts from the fact that agents (not beings, as Sir Edmund thought) act in view of a definite end; elsewhere, notably in the *Contra Gentes*, he begins from the fact of the order existing between beings, such as is evident in the subordination of the many parts of an individual being, or in the relation of different beings among themselves. Both formulations rest on the fact of order, but the emphasis in the first presentation is on the activity of beings, whereas in the second it is on the static aspect of order. We might say that in the two forms of the proof finality is con-

sidered first dynamically, then statically; or that the first form deals with intrinsic finality, the second with extrinsic. With this distinction in mind, we can more easily assess the value of Sir Edmund's remarks, by separating what refers to one form of the proof from that which pertains to the other.

St. Thomas, as Sir Edmund points out, bases his (first) form of the proof on the initial assumption of final causality in Aristotle's sense, that is, "of functions, or intrinsic purposes" in active beings; such agents, in acting, "tend to a definite purpose." This is a fair statement of the principle of final causality, which for Aristotle and St. Thomas, affirms that every agent acts in view of a definite end, and which they regard as a self-evident analytical principle, and one which, like all first principles, and like causality itself, is analogical. Such finality is realized in different ways according to the difference of the agents involved; finality is manifest in such different orders of activity as that of the liberation of electrons by atoms of certain material substances under the influence of an incident beam of light, of the intrinsic determination of a grain of wheat to grow, under given conditions, into the plant, of the activity of animals to attain an objective known by the senses, and of the rationally directed activity of human beings. Sir Edmund's ignorance of the nature of analogy leads him, it seems, to identify the finality of beings behaving "as if they were striving to accomplish some purpose," with the form of finality proper to man, with the result that St. Thomas' idea of finality is regarded "as a naive and picturesque way of saying that their behaviour is not lawless and haphazard, but is governed by definite rules." That is just what St. Thomas means, but not in any "naive or picturesque" sense. Beings are so made that they act in a definite way, to attain a definite end; their manner of activity is determined by their nature, by their intrinsic constitution; there is a proportion or adaptation between nature, activity, and end pursued or realized; the "definite rules" are not man-made precepts, but the intrinsic determination of a specific nature to act in a specific manner. It is this fact from which St. Thomas starts, this intrinsic order of

nature to activity and to a corresponding end; he seeks the efficient cause of such adaptation, a cause which must be intelligent, for only intelligence can know or effect order as such, and which must transcend nature, for all nature is active, and therefore endowed with that finality which needs explanation.

It is not strange that modern physics "does not make St. Thomas' initial assumption," when we are told in the same page that science "has been directed towards discovering laws rather than ends, *how* rather than *why*, and has renounced the claim to understand the deeper significance of its own discoveries . . . the existence of a final cause has been simply ignored." It is perfectly true that science, by its methodology, considers only the *how*, never the *why*; it tries to discover *what* the world is composed of, and how it acts. Never does it put the question *why* anything exists, nor is it competent to answer such a question. That is precisely why science can tell us nothing, directly, about the existence of God, which is always known in answer to the *why* of a certain existence, so that natural theology is essentially linked to an existential metaphysics⁴⁹ and is independent of any system of science. Similarly, science, as such, has nothing to say, one way or the other, regarding the fact or nature of finality, although it considers facts which may call for, or seem to dispense with, finality. But this does not mean that there is no such thing as finality, except on the hypothesis that there is no other knowledge of reality than that afforded by science; and Sir Edmund seems to admit that the understanding of the deeper significance of its discoveries pertains to a science other than physics. Philosophy, and indeed common sense, sees the deeper significance of law in a determination of activity which betokens finality, without which there would not be law, but chaos. Philosophy did not have to wait for the science of the present day to recognise "that there is order, system, adjustment, fitness in the nature of things, and

⁴⁹ By "existential metaphysics" we do not, of course, mean existentialism but a metaphysics that centres around that existence to which being is essentially relative, and can not, therefore, be purely *a priori*, but must be grounded on existent reality.

in their relations to other things; the eye, for instance, is highly organized, and is adapted for seeing." Science has revealed more instances of order, and has described more intimately the physical structure of agents; but surely it was evident to all from the very dawn of reason that the eye was highly organized, and adapted for seeing. This is quite a good instance, in fact, of that basic experience which is essentially independent of science, and serves as the starting point of metaphysics. This "mediaeval idea" has not been displaced by "the modern outlook," and so there is no need to seek for a new starting point for a re-constructed version of the fifth way.

Sir Edmund's new version of the fifth way in so far as it contains elements that are valid towards proving the existence of God, adds nothing to the proof from extrinsic causality as put forward by St. Thomas. This "new version" takes as its starting point the existence of order in the universe, and we are told that the existence of such order is far more firmly established now than in St. Thomas' time, since science has revealed a mathematical relationship between things and events, and has expressed such relationships in the form of laws. But surely we have to make a very evident distinction here, one which Sir Edmund makes himself, but whose significance he does not seem to realize. Mathematical laws and relationships are, formally at any rate, products of the mind: "the law of gravitation is a mathematical abstraction existing only in the mental realm"; "the different effects [in observed phenomena] are interconnected logically"; "mathematical law is a concept of the mind." From this connection between law and mind, Sir Edmund wishes us to conclude from the existence of mathematical law to that of a transcendent mind. But it seems clear that this new presentation instead of strengthening the fifth way, really destroys it. If the only law we are to consider is mathematical law, and if such law is only a mental abstraction, we seem to begin, like St. Anselm, in a purely mental or ideal realm. We can, indeed, start from a really existing fact of the mental order, and argue from it to the existence of God, if such a fact is inexplicable by merely finite causes; but that is not

the case with mental abstractions which are explained by the finite minds which form them. If it is urged that mathematical law is not to be taken absolutely, but rather in so far as it is the reflection of an objective order among existent beings, then we are back to St. Thomas' position. The objective order reflected in mathematical laws is quantitative in nature, expressing such relations as distance, measure, and mass, which abstract from activity, and therefore finality. A proof based on finality must start from an order of activity and causality; and if we grant the existence of such an order, we return to that which is the basis of Greek and Scholastic, as of many other, philosophies: that the universe is an ordered whole, a cosmos; that such order is rational and can be understood by the human mind; that it is an order of causality, so that the explanation of any event is to be sought in its causes; that philosophy is precisely the search for those causes which ultimately explain the universe.

St. Thomas, as always, is thoroughly realistic in his treatment of this question. Beyond our imperfect formulations and abstractions he sees the actually existent and objective order among beings in nature which is the foundation of the logical relationship of ideas in our mind. He distinguishes very clearly between objective order and our knowledge of it. So too does Sir Edmund, who speaks of the laws of physics as "beginning to reveal a natural and ontological order" in nature, and also speaks of the world as "rational" in which we can discover "unity, coherence and inter-connectedness, adaptation and co-ordination of parts." But St. Thomas bases his argument on this objective order, which is not explicable by nature itself, whereas Sir Edmund asks us to start from a mental reflection of such order which is explicable by the reflecting mind. In both forms of the argument it is admitted that order can be explained only by mind; since Sir Edmund considers only that order of which the human mind is the adequate cause, it is not surprising that, for him, the fifth way should not, of itself, exclude pantheism, or lead to more than the existence of the architect of the cosmos.

He tries to overcome this Kantian objection to the proof by pointing out that since we now know "that the *same* mathematical laws are valid over the cosmos" the order of the universe demands one mind as its author; and since science also speaks to us of creation in the past and of the impossibility of life in the universe at some time in the future, "it is incredible to suppose that God is bound and conditioned by a world which has its appointed times of birth and death," so that He must be "extramundane." According to Sir Edmund, these considerations were unknown to St. Thomas and they serve to correct his proof, at the same time answering the Kantian objection that we use principles which are valid *within* the world to posit a Being who is beyond the world.

The unity or diversity of the mathematical laws has little bearing on the question, for God is author also of the laws which rule living activity and intellectual processes; if He were author only of mathematical laws He would not be God, nor even the architect of the universe—which is far more than a mathematical entity. The limitation of the universe in time, even if it were granted that science had proved such a thing, would at most allow us to argue to the existence of a being whose life was independent of those conditions which are necessary for the continuance of human life. Such a being is not necessarily God; purely spiritual, though finite, beings would satisfy the demands of this proof. And if we accept the Kantian criticism, and limit ourselves to principles which are valid only within the universe, no amount of scientific progress will enable us to escape beyond the universe, which will mark the limits of the employment of reason.

The Thomist does not accept the Kantian criticism nor the philosophy on which it is based. The analogy of being justifies the transcendental validity and employment of first principles, but such employment is invoked only when there is question of God's nature. We reason to the existence of God by considering the world of finite being, for which those principles are certainly valid, and realizing that the universe is incapable of explaining itself, we conclude that it is caused. We attain

directly only the insufficiency of finite being; but this implies the existence of a cause, a cause whose inner nature we can never know by reason alone, and of which we can speak only by analogy. This cause, for man without divine faith, will ever be an unknown God in so far as His inner divine nature is concerned; but if man can know that God must be unknown, he can also know that God is.

The fifth way, as understood by St. Thomas, not only surpasses this new formulation in objectivity and cogency; it excludes the possibility of a finite or pantheistic God. Order always, in any form, is an effect of mind, for it implies distinction, duality, and tendency. Even though the whole universe were to form one vast order, it would still be an effect; and it is clear enough that such order would be the result of the ordered activity of its component parts rather than its cause. As St. Thomas points out, indicating the transition from the first form of his argument to the second, beings act in such a way as to tend to a definite end and to co-ordinate and subordinate their individual activities into one harmonious world-order of adaptation and of fitness for permanence and evolution. The pantheist solution answers our demand for a cause by offering us an effect. And if order is always an effect, we never reach the cause of order until we arrive at a being in which there is no order, no distinction, or multiplicity, not even that most radical of all distinctions, the distinction between essence and existence. A being whose essence is existence, the supreme actuality and activity, distinct from all else, transcendent and uncaused, the source of all being and activity; such a being is none other than He who is, the unknown God of philosophy, Who has made Himself known by His Son.

* * *

Such criticisms as these, which a Thomist feels prompted to set forth in the interests of truth, should not blind the reader to the real merits of Sir Edmund's efforts. Here is a distinguished scientist who not only believes in God, but maintains that the existence of God can be proved by reason, and that it seems to be demanded by modern science. One cannot but

praise his intentions, and hope that his work will have the effect which he desires.

He has had the courage to touch problems that are very real and of great importance, such as the relation between science and common sense and philosophy. There are philosophers who do not show the same interest in science that Sir Edmund shows in philosophy. They are content to base their philosophy on what can truly be described as infantile or rudimentary experience, and rely on those uncritical and largely pragmatic assumptions which sometimes pass as common sense. The modern philosopher cannot neglect the findings of present-day science even though he is not essentially dependent on them as regards the formulation of his principles. Science has purified these notions of common sense and can thus strengthen the foundation of philosophy; it has given rise to new problems, eliminated false ones, has enabled the philosopher to state the old problems more correctly, and to separate that which is strictly scientific from what is properly philosophical. This is particularly true of the philosophy of nature, and on the proofs for the existence of God which begin from facts of that world of which science also treats though under a different light. The genuinely Thomistic attitude is expressed in the following words of a well-known philosopher of that school: "there are certain metaphysicians who, though realists, maintain that a minimum of common experience suffices for them to rise to the great principles in which they may contemplate the truth in all its fullness and virtuality. With no other equipment than a half-dozen of such principles they rise on the aeroplane of the syllogism and make their wonderful flights in the region of being, looking with compassionate eyes at those poor mortals who plod along on foot in the rocky paths of experiment, supporting themselves on the earth lest they fall."⁵⁰ Surely it is truest common sense to recognise that science has much to tell the philosopher about common sense.

Nevertheless the error of the philosopher who disregards the findings of science is not as great as that of the scientist who

⁵⁰ E. Barbado, O. P., *Introduzione alla Psicologia Sperimentale*, p. 4.

seeks to reduce philosophy to science. The philosopher who is a realist, particularly if he be also a Thomist, does at least admit the validity of science in its own sphere, and part of his task is to justify its speculative foundations. He avoids the two extreme positions, that of the idealist who absorbs science into philosophy and denies its validity as an independent branch of knowledge, and that of the positivist who reduces philosophy to science. Sir Edmund tends towards this latter extreme. His position is frankly positivistic; his concept of causality as a mathematical function is common to Avenarius and the other members of the German positivistic school, who form the transition between the older classical empiricism and the neo-positivism of our own day. The present neo-positivist school represents exactly the conclusions to which any system of thought founded on physical science alone must lead. It holds that the only valid science is physics, that the only legitimate treatment of facts is that afforded by mathematics and logic. The sole function of speculative thought is to establish the signification of the propositions of experimental science, so that philosophy becomes the critique of scientific language, or the logical syntax of the sciences. Sir Edmund does not make the full journey towards this extreme position; perhaps he is restrained by his innate common sense, or by the Platonic tendency which he shares with so many English thinkers. He stands half-way on the road that leads logically to neo-positivism, and does not seem to be quite sure in which direction to turn, whether towards this goal or away from it towards a more spiritualistic realism. His position is really a compromise, and such positions usually become the butt of criticism by the schools which it attempts to reconcile. If this article represents some of the criticisms which a Thomist must make, perhaps the following words of a neopositivist may represent the attitude of that school towards the position taken up by Sir Edmund, and at the same time help him to decide in which direction to turn: "We may say that inductive metaphysics, in the sense of a speculative cosmology derived by extrapolation from scientific evidence and scientific theory, need not

contain factually-meaningless elements at all. There is no sharp line between the inductive generalizations of common sense and science on one side and those of cosmology on the other. It scarcely needs to be mentioned that metaphysics in *this* sense, though *logically* unassailable, is open to criticism from the point of view of the criteria of adequacy and precision, reliability and fruitfulness. Conjectures regarding the heat-death of the universe, the origin of life, and the future of evolution may be perfectly meaningful. But anyone within even a superficial acquaintance with scientific method will realize how uncertain and vague these guesses must be. Occasionally they may be valuable as suggestions for new approaches in scientific research, but with the exception of a few notable instances like the ancient atomic hypothesis, they are apt to remain barren, if not actually misleading. Inductive metaphysics is thus merely the risky, sanguine, disreputable extreme of science."⁵¹

An inductive metaphysics of this kind is little more than a reflective physics, a prolongation, speculative in nature, but always along the line and in the order of physics. It is neither philosophy nor physics, but marks the natural subjective transition of an individual from questions of physics to those of philosophy. This is, it seems, the main significance of such works as the herein often cited "Space and Spirit" of Sir Edmund Wittaker, and as such they have a value that the philosopher will gladly and gratefully acknowledge. Modern philosophy as a whole has renounced its duty and birthright, as supreme natural science, to guarantee the concepts and principles of physical science; it has been cultivated, not as a vital need, not as a necessity both of science and of the human spirit, but as a science among the sciences, as an auxiliary discipline at the hands of men who, for the most part, have no connection with other branches of knowledge. But science needs philosophy; and who can blame the scientists if, in default of the philosophers, they undertake the task of constructing their

⁵¹ H. Feigl, "Logical Positivism," *Twentieth Century Philosophy* (New York, 1947), pp. 384-385.

own system on the basis of the facts and by the methods within their competence? Such attempts as these, and they are many today, loudly proclaim the need for a philosophy, above all of a metaphysics, capable of assuring the foundations and of incorporating the facts of science, of aiding in the interpretation of those facts, and of satisfying the undying aspiration of the human mind. In the concluding section of his book Sir Edmund gives voice to this aspiration, and pleads for closer co-operation between science and philosophy. Perhaps even better than he realizes he has shown the philosopher what are the obstacles on the part of the scientist which stand in the way of such union. The philosopher also must aid in removing such obstacles as he may have placed in the past. But he will not regard a compromise as a valid or lasting solution. Science and metaphysics are as different as space and spirit. Union is not identity, just as distinction is not separation; and truth is best served, not by surrender, but by that justice which eternally declares *uniquique sum!*

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COGNITIVE ASPECTS OF THE HEISENBERG PRINCIPLE

I

THE Heisenberg uncertainty principle, like its rival theory of relativity,¹ has been one of the truly crucial phases in the physics of our day. It did not, like the discovery of a new element or the Maxwell equations, simply indent the story of classical physics for a new paragraph. It was not only a new chapter but a new book.

Detected, in the words of Heisenberg himself, when physics became self-critical, the principle is a statement of what is observable—like its contemporary, the theory of relativity. It was a new advance in method, so revolutionary indeed that physics has virtually lost meaning as content and become synonymous, as logical empiricism amply indicates, with mere rules of procedure.

That science is developing into a system of logic, combining the Cartesian stress on clearness with the Kantian regulative idea, actually confirms a contention of traditional philosophy. It reveals that once we deny the colors and sounds, the life, lights, and purpose in our universe—as pure scientific method actually does—we are fated to deny much more than quality. Quality is in the order of form, substance, and being. The moment quality is banished from the real world, by the same

¹ That all is not as peaceful and unified in physics as the layman sometimes believes can be seen in the deep cleavage between quantum and relativity mechanics. For the first, the exact specification of space (position) and time (velocity, momentum) has no meaning, while in relativity theory such exact description is the only meaning that can be had. Despite the efforts of leading physicists, including Dirac, to unite the two theories, the contradiction is so profound that one of these systems must eventually be abandoned or, more probably, both of them will be superseded. The recent work of Schroedinger and apparently also of Einstein himself are directed to extend the general theory of relativity, making the current theory a special case just as Newtonian physics is a special case of present relativity mechanics.

decree *being* itself—because it is an immediate, non-inertial (formal) thing like quality—is driven into its only possible exile, nothingness. It is not surprising then that, after modern physics has finished its task, the universe should not only be emptied of its lights, its fragrance, its sweetness, and its music but should also be without being and without existence.

The uncertainty principle has been much debated in modern thought. Its impact has brought a sad end to the pride of 19th century science since it prevents a complete knowledge of anything at all by shading into the darkness at least one of the two major factors that specify it. Shortly after the principle was born it was hailed by various authors as a proof of free will, of the possibility of religion, and of non-mechanistic concepts in biology. In a more consistent and challenging sense, it has often been taken to refute what the physicist calls causality and what the philosopher calls the order of nature. The fact of the matter is that if the senses alone supply knowledge, truly only one thing at a time can be apprehended. If Hume was right in philosophy, so is Heisenberg. But when sensism yields to an intellectual insight into reality, it is easy to refute the scientist's claim to dethrone the doctrine of nature's order which he could never detect, even in classical physics, by pointer-readings.²

But whatever the fate of the Heisenberg principle in cosmology, it has had a most fruitful career in the field of physics. To Heisenberg himself, the principle was a point of departure for an original development of quantum mechanics based on the "uncertainty" of position and momentum:³

If, for example, measurements are made, under a microscope, of the position of an electron, the photon (light-particle), which impinges on the eye and thus conveys the required knowledge to the physicist, has had to collide with the electron, thus imparting an impact known as the Compton recoil. When

² For a discussion of the order of nature, cf. J. Marling: *The Order of Nature in the Philosophy of St. Thomas Aquinas* (Washington, D. C., 1934).

³ W. Heisenberg: *The Physical Principles of the Quantum Theory* (Chicago, 1930) pp. 20 ff.

billiard-balls, A and B , meet, they exchange energy. If the energy of A after the impact is taken as a measure of B 's motion, it is obvious that B has been disturbed and that its momentum, at the instant when A is measured, is no longer the same as at the time of collision. In a similar fashion, the electron has been modified by the photon. Its original motion has been altered, and hence, its momentum cannot be exactly specified.

However, if the microscope were movable, would it not be possible, at least theoretically, to let it follow the electron-recoil, tracing its momentum in exact form and thus escaping the uncertainty relation? No, for then the position and momentum of the microscope are subject to the uncertainty-relation, and indeterminism turns up anew. "And so *ad infinitum*," according to Heisenberg.⁴ If light of a shorter wave-length is used to illuminate the particle as in the case, say, of the electron-microscope, the factor of interference becomes correspondingly greater. If A in the billiard-ball example were a toy-marble, it could not alter B , a billiard-ball, to any appreciable extent. Two more similar particles are mutually altered by the collision, whereas in the case of a very small versus a very large quantity, the disturbance is one-sided—on the part of the smaller, with the larger perhaps hardly altered at all. In the case of the electron-microscope, where by comparison with ordinary illumination the shorter wave-length improves resolving power, two similar particles would obtain in measurements on an observed electron and thus the position-uncertainty would be of appreciable magnitude.

Momentum measurements are made in terms of the positions occupied by a particle at different instants. In the framework of the example above, it is clear that, if position were measured at one moment and, in an appreciably short time, measured again, the second measurement also registers the interference produced by the first: it does not reflect the exact position of an undisturbed particle, and hence undisturbed momentum

⁴ *Ibid.*, p. 22.

cannot be compared. There is thus an inherent limit on observation, a permanent horizon which measurements approximate but beyond which they cannot go. Position and momentum cannot be simultaneously specified.

The uncertainty principle does not apply only to the macrophysical world but to the whole range of physical reality. In the macrophysical world, the measuring disturbance is so small as to be negligible, but in the domain of microphysics, the disturbance is important. The more position-measurements are taken, the greater becomes the uncertainty in momentum or velocity, and vice versa. The result has been a compromise. Yielding to the calling of reality clamped down by nature on the exact measurement of position and velocity, physics now operates with quantities in terms of probability.⁷ Suppose that in an electron, when its trajectory is measured, there were a velocity uncertainty of 2×10^8 cm./sec. It can easily be computed by the physicist that there is a position uncertainty of 1.2×10^{-8} cm. Since the radius of the electron is of the order of magnitude of 10^{-8} cm., the error is of the order of 100 times the size of the electron itself, a staggering uncertainty in view of the ignorance in the problem. On the other hand, a rifle bullet of mass 20 grams and a position uncertainty of 0.01 cm., will turn out to have a velocity uncertainty in our measurements of 2.5×10^{-14} cm./sec.—an undetectably small quantity.⁸ Hence, the physicist, even when measuring, as in all now the Heisenberg principle demands, that every problem of measurement be solved only in terms of probabilities, nevertheless neglects the uncertainty re-

⁷ The instantaneous state of a system can be described in the quantum mechanics by specifying the dependence of a suitable probability amplitude in the variables of which it is a function at any time of interest, and from such a specification it is possible to calculate the probabilities at that time for finding different values of the continuous momenta and other measurable quantities belonging to the system. R. C. Tolman, *The Principles of Statistical Mechanics* (London 1938) p. 206.

⁸ This problem is taken from *An Outline of Atomic Physics* by members of the Physics Staff, University of Pittsburgh (New York 1943) p. 381-382. The formula employed and the substitutions needed can be found in this work.

lations when measuring disturbance are small and accepts classical mechanics in such cases as a satisfactory approximation.⁷

Schroedinger, proceeding on the de Broglie theory of matter-waves, was able to perfect another approach to quantum mechanics, in which the dichotomy was wave-particle rather than Heisenberg's problem of momentum-position.⁸ In a rather astonishing fashion which seemed to confirm both views, the two theories were found to be equivalent. The result is Bohr's principle of complementarity⁹ in which position is associated with matter considered as a particle and momentum with matter considered as a wave. Whether the Heisenberg or Schroedinger approach is fundamental is by-passed by considering them as complements, and since physics does not possess epistemological equipments, it really cannot raise the critical problem—though various of its spokesmen actually do so.

Even if the Schroedinger approach is emphasized, indeterminism in the general sense is a basic notion in contemporary quantum physics. Viewed from the observatory of the Heisenberg principle, position and momentum cannot be simultaneously specified. Since measurement alone is meaningful in the physicist's world-view, indeterminism here is a much more formidable question than to the metaphysician whose interest lies behind the mensurable. On the other hand, in the Schroedinger theory, wave-amplitudes represent the probability of finding particles at given points. Schematically speaking, in a one-particle system represented just for illustration by a periodic curve (say, a sine wave for simplicity), the varying amplitudes on the drawing would correspond to the probability-density and its fluctuation from zero, where the particle cannot be located, to a 1/1 ratio, where in the limit it would be certainly found. Between these extremes of zero and one in this

⁷ "We may define an object to be big when the disturbances accompanying our observation of it may be neglected, and small when the disturbance cannot be neglected." P. A. M. Dirac: *The Principles of Quantum Mechanics* (Oxford, 1935) p. 3.

⁸ E. Schroedinger: *Abhandlungen zur Wellenmechanik* (Leipzig, 1938).

⁹ Cf. for a statement of the principle, L. de Broglie: *Matière et Lumière* (Paris, 1937) p. 308.

analogy are the quantitative values of the probability of a particle's presence at points corresponding to the respectively varying amplitude of the curve. Hence, the notion of probability is developed from the wave picture, rejoining the indeterminism of the Heisenberg principle.

Indeterminism is thus something of a cornerstone in the whole of quantum theory. Physicists like Einstein and Planck have insisted that it is a merely logical limit which later theories and instruments will transcend. Others, like Heisenberg, accord an objective status to indeterminism.¹⁰ There are, they would hold, blank pages in the book of nature. In a positivist sense, to speak of the world independently of measurement is meaningless. Traditional philosophy, exploring the world from the viewpoint of its entity rather than its inertia, insists that, no matter what data mere instruments may yield, nature itself follows a fixed path. It is strictly and universally determined.

II

It requires but little inspection to show that the way in which the scientific method regards knowledge is only an aspect of the way in which it views the whole of being—in the light, or rather in the shadows, of the principle of inertia. Being is not considered meaningful until it has been measurably modified. Current, for example, is understandable in terms of electromotive force and resistance, both of which are external. The principle of universal gravitation accounts for positions in bodies entirely in terms of forces, pushing and pulling from the outside. If a body is in equilibrium, it is not because there are no forces acting on it but because the algebraic sum of the external forces is zero. The law of inertia states that everything at rest or in motion thus continues at rest or in motion unless acted upon by some external force. It is these outside

¹⁰ Even a so-called scientific philosopher like Bertrand Russell is willing, in at least one stage of his intellectual vagaries, to concede an equivocation in the meaning of the word "determinism." In one sense, the term means the order of nature (causality); in another, it means our measurement of that order. Cf. his *The Scientific Outlook* (New York, 1941) p. 105.

forces that, for the physicist, completely determine the reality of what he studies. A molecule of water may be traced from the Gulf of Mexico through the Mississippi to the trickle of a spring on a Minnesota farm. But the physicist is not satisfied to stop there. Seeking the farthest thermodynamic facts about the molecule, he traces it to the cloud which released it as rain, to the sun which gathered it up for the cloud, and to the molecules, atoms, nuclei, neutrons, mesons, submesons—and so *ad infinitum*—which power the sun. It may truly be said that for the physicist the cause entirely exhausts itself in the effect. There is nothing in strain which is not available in the notion of stress (Hooke's law). The notion of current in the example above exhausts the concept of E/R which appears in Ohm's law. The charge on an ion results from the electrons which are considered to be—mechanically and not intrinsically in the sense of *per naturam*—within it, and the electrical energy of the electrons comes in turn from a source other than the electron. For the physicist, there is nothing in the cause but what the effect itself embodies.

Cause and effect are really equivalent in physics, and that is why it proposes to abandon causal explanations in favor of Humean descriptions. The equality of action and reaction, stated by Newton as the second of his laws, survives the downfall of Newtonian mechanics as the universal principle of scientific method. In a strict sense, it would make no difference in the case of a falling body whether the energies outside of it are envisioned as the cause of the fall or whether the fall is taken as the cause deploying the energies. There is no hierarchy in physics and no detectable difference, according to the scientific method strictly pursued, between cause and effect. Boyle's law, stating that pressure and volume are inversely proportional, can be approached in two ways if the scientific method is obeyed down to the last syllable. Pressure can be viewed as causing changes in volume, or volume can be pictured as basic to pressure. In physics, where definitions, laws, and relations are expressed by an equality sign, cause and effect are interchangeable, and contemporary positivists seem to cater to this

fact by ruling out both terms. At first sight, however, a distinction might be drawn between cause and effect on the basis of the second law of thermodynamics which states that entropy is always increasing and that the action of a system will always be directed so that the energy, to use a popular phrase, flows downhill. Does this law ransom physics from a tautology? No, for the law of entropy, however happy and helpful it may be, is only apparent in, and equivalent to, the very facts which the physicist believes the law to regulate. Scientifically speaking, the law of entropy is thus unable to overcome the equivalence of cause and effect in physics, and if physics is taken as the final account of the cosmos, only a levelled, proletarian universe remains.

According to a realistic approach, this inertial view of things is entirely inadequate. There is a priority of cause over effect. The cause is nobler, greater, richer, and fuller than the effect. It is and remains itself while producing an effect distinct from itself. Obviously, such a hierarchy cannot be discerned by the scientific method which cannot assign any more reality to a cause than it can measure by its effects. It cannot measure dependence. But the hierarchy is crystal-clear to a philosopher, seeing the real dependence of one thing on another (inequality) and observing not only efficient causality but purpose, subordination, and the return of the effect to perfect the very cause which the physicist envisions as being emptied in causation.

There is a discontinuity between cause and effect—an abrupt, immediate, entitative break in the chain of events which the physicist pictures as continuous. Reality is, in short, not a homogeneous continuum. It is a plurality in which being is interrupted by nothingness and in which discontinuity appears. If there is discontinuity in the world, then equations and equalitarianism do not suffice. Unbridgeable by a continuous curve, the gap stands there to challenge man, and the fact that the physicist acknowledges the differences among things and among thoughts indicates that he could never be a physicist, thinking discrete thoughts about discrete things, experimenting with different instruments and writing in words, sentences, and,

above all, punctuation marks, indeed he could never be or know anything if his world were the only one that exists. The physicist's view may be summed up as inertial. Dewey, who copied the scientific method, has apparently urged that a thing has no other reality and meaning than what we can do with it and that, for instance, to a person thirsting in the desert water has no other reality than its meaning to quench the thirst; indeed, "so far as it may not mean it, it is perhaps not water."¹¹ For physics, reality is interpreted in terms of what is outside of it. Uranium is not interpreted in itself but entirely in terms of the effects which it produces.

When this over-all picture is now applied to the knowledge problem as the scientific method views it, a particular case shapes up within the general concept of inertia. According to the physicist's view, things are not intelligible in themselves,¹² any more than they *are* in themselves. To have anything, even intelligibility from the inside would be contrary to the principle of inertia. A physicist must experiment with a thing, making it produce its effects, before he can acknowledge it as real or meaningful, and the thing is known only and entirely in terms of these effects themselves or in terms of the "causes" which in turn produce it. Current is known wholly and only in terms of voltage over resistance or in some other such exterior fashion. It has no meaning in itself. If the E/R ratio is challenged as an inadequate account, current can be further ex-

¹¹ Cf. *The Philosophy of John Dewey*, selected and ed. by J. Ratner (New York, 1928) p. 115.

¹² At first sight, it might seem as though a Thomist goes to an extreme opposite that of physics in holding that all being, since it is intelligible, is easily and fully known to an abstracting intellect. Writing in *De Ente and Essentia*, St. Thomas himself contradicts this view by stating that, since essential differences are not known to us in sensible matter, the underlying substance must be known by the properties which inhere in them. Our knowledge of matter is weak but it is not zero. Some intrinsic contact with material substance is made through the transcendental relations, borne by accidents we see directly, to the underlying substance which we can at least identify as something. Because of this transcendental relation, there is an immediacy between substance and accident, and this immediacy entitles one to parallel in cosmology what he means in metaphysics when he says that being is immediately and intrinsically intelligible and that the act of knowing it must likewise be immediate and intrinsic in its compenetration.

plained as the flow of an "electron gas," obeying Fermi-Dirac statistics. But the "electron gas," if it is not according to some aspects just another name for current, may be viewed as the cause of the current in much the same way as the Boltzmann gas of classical kinetic-molecular theory would be considered as the cause of the pressure exerted on the walls of the enclosure. Cause and effect are equated. Measurement is a mere noetic parallel of the physicists' view that being is inert. In physics only the metrical statements are meaningful.

The principle of indeterminism is merely a polite register of the belief that being is not intelligible in itself but that we must alter being to know it. Because of the disturbing character of any possible measurement, Heisenberg, in contrast to Einstein and Planck, is inclined to view the uncertainty relation as a permanent limit on observability, and he sounds almost like a Sartre when he "despairs" of overcoming it.¹³ In other words, according to this inertial view, science is condemned to agnosticism with regard to what, if anything, is really "there" apart from measurements and is thus completely walled off from reality's ultimate nature. Scientifically speaking, man only knows things in their outside influences and forces; he does not, as in the Thomistic account, know things in terms of what they are but only in terms of what they are not. He only knows electromotive force, say, in terms of what lies inertially outside of it, its causes and effects. It sounds at least paradoxical to study being as equivalent to the non-being and to depict the fullness of things in terms of a vacuum. But such is the ultimate depth-charging meanings of science pursued strictly and simply to its very limits. Existentialism is an ally in pushing the analytic of science and of modern thought to its ultimate absurdities, when it is taken by itself. What is turns out to be

¹³ "Wir haben zu diskutieren, ob die Naturforscher auf den Gedanken an eine allen Beobachten gemeinsame objektive Zeitskala, an objektive, von jeder Beobachten unabhängige Geschehnisse in Raum und Zeit für immer verzichten müssen, oder ob die jungste Entwicklung nur als eine vorübergehende Krisis zu betrachten ist. Es scheint mir, als ob die stärksten Gründe dafür sprächen, zu glauben, dass dieser Verzicht endgültig ist." *Wandlungen in den Grundlagen der Naturwissenschaft* (Leipzig, 1936) p. 13.

what is not. That the positivist in physics does not reach this extreme form in actual practice is simply a sign that he does not follow his positivism too rigorously. He is not only a physicist. As a man, he sees, understands, accepts, and uses much more than he can bring to empirical focus. He rejects metaphysics only explicitly, and thereafter he merely uses it.

Agnosticism with regard to unmeasured and to ultimate reality is not the only consequence of this inertialism in purely scientific knowledge. If indeterminism is really a universal fact, it may be questioned whether any knowledge could ever be available at all. If the object of knowledge must continually be altered to be known, then the alteration itself, to be an object of knowledge, must also be altered. Nothing could ever be known at all. If everything depends on an outside agent to make it intelligible, then nothing really is intelligible, and if nothing is intelligible, nothing is ever understood. If man must interfere with things in order to know them, and if no other knowledge is possible, then this is an unintelligible, meaningless, beingless universe where it could never be stated what is meant by interference itself. Once more, existentialism, especially as stated in the tenuous dialectic of Sartre's *L'Être et le Neant*, can show by its nihilistic and nonsensical conclusions the direction to which pure analytic points. In a genuine way, Sartre is Heisenberg on a philosophical plane.

III

In the scientific method, man is regarded as a mere observer. The knowledge act itself is not formal but purely transeunt, an inert process reduced by metrical analysis like that applied to the physical world. What is known even in ourselves must be altered to be known. Just as current, scientifically, is known in its causes or its effects but never in itself, so we never are known in ourselves but always in terms of what is outside ourselves. We know ourselves by what we are not. We cannot remain ourselves and know something else any more than a cause can retain its identity and produce an effect. The result is that we can never know that we know. In the subject of

knowledge, there is the counterpart of the scientific method applied to the objective world: we cannot know ourselves unless we alter ourselves.

Such views of the object and subject of human knowledge are contrary to experience. They would render even the scientific method impossible. Both common sense and organized science attest to the reality of an objective world whose power we respect, whose laws we have in a measure understood, and whose behavior has often been harnessed for the aims and service of man. If we have this definite and determinate grasp of what is exterior to thought, then clearly the object of knowledge cannot be immersed in a Heraclitean flux of infinite regressions. Somewhere a reality that does not obey pure scientific method but is none the less real and active, in the thought of the scientist and in the things which he studies, comes before the curtain to be recognized.

It would be a laboring of the obvious to catalogue the definite, determinate knowledge which man reaches. It pervades the whole of his intellectual, practical, and productive life. It is the object of experience which experiment must seek to explain. Proceeding from the known to the less known, experiment must be a satisfactory account of experience rather than a gratuitous laboratory category into which experience, to be real and meaningful, must be fitted. Certainly in the object world there is a something that is determinate and is encountered in the comparisons and insights, the loves and hates, the light and warmth of inner, personal life as opposed to the outer, detached, and impersonal techniques of sheer physical science. In an indeterminate universe, no knowledge would ever be possible, even that of the Heisenberg principle. In a similar manner, experience, reason, and consciousness testify to the fact that "I" know. As in the case against Hume and James, unless there were the consciousness of an abiding subject in knowledge, man could never say "I know" but only "it knows"—just as he says "it rains." He would have to treat his knowledge as the scientist deals with the rain, analyzing it into an endless series of meteorological data, and he would have to reduce all "sub-

stantives" as Dewey does, treating them as merely logical subjects.

From a more constructive viewpoint, the more the physicist is impelled to carry his method to its extreme form, the more lucidly emerges the necessity, nature, and knowability of a world beneath the touch of the scientific method and a knowledge beyond that of science. Indeterminism, when pressed to its limit, brings us to reaffirm inescapably the nature of being and of man long defended by traditional philosophy.

First, there emerges the unmistakable reality of the unity of being, the so-called transcendental attribute which is co-terminous with being, itself. Man thinks about reality in order to know it. In so doing, if he alters the reality, he does not know it as it was, much less as it is. But if he knows anything at all about exterior reality—for example, "this is a book" or "that is an interfered-with electron"—this knowledge is only possible if the being remains a book or an electron before, during, and, in a sense, after the knowledge process. The book for instance is obviously something. During the time required to make a judgment like "this is a book," the thing that was present when "this" was in the mind must remain what it was, while the knower goes on to think "book." It remains identical with itself. It is, in a sense, reduplicative, a whisper of that immanence which will in the higher stages of reality be identified as life. Being has a unity, as the scholastics called it, or more accurately, being is one. Breaking down once more the proposition "this is a book," thermodynamically the first state could never be the same as the second; "this" could never be identified with "book"; it is entropically irretrievable. Yet in reality, these "states" must in some measure be the same; otherwise, we could never know the book. The reduplicative character of being, so to speak—a way of describing its self-identity—, explains its self-intelligibility. It is impossible to be consistent in denying the unity and identity of being, its undivided, non-inertial, and immediate character. Unless such a character were objective, nothing could ever be known.

Secondly, the subject of knowledge cannot be inert. If that

were so, it could be said, adhering to strict physics, that once more a scientific proposition or scientific law would be impossible to state. Obviously, we could never formulate the proposition, "this is a book," in the logical order. The term *this*, in order to be grasped, would provoke an infinitely long chain of interference phenomena in thought, if the Heisenberg principle indeed be universal. We would never stop the infinite series set in motion by the term *this* even to begin the "next" infinite regression occasioned by the term *book*. Much less could the inner, immediate likeness of the two concepts be detected and compared. If knowledge takes place, as it clearly does, there is a point at which this would-be infinite sequence terminates and at which immanence begins, a point where the same subject who thinks "this" also thinks "book" and identifies the two thought objects in the intrinsic unity of the being beyond his mind. Knowledge cannot be engaged in infinite regressions. If the two terms of a proposition are to meet and mingle, something in the subject must remain unaltered.

There is a type of reflection in a judgment, in which the subject and predicate are seen as identified or not.¹⁴ Aquinas pointed out that in the understanding intellect, two things can be present simultaneously from one viewpoint,¹⁵ even though from another viewpoint the intellect, deepening its knowledge thus and expanding its universe, may focus on only one of these. Such a reflection as judgment implies can only be carried out by what is not inert but has an interiority of its own—to the

¹⁴ In the judgment that "man is a being," the following description applies: "Les deux mots, être et homme, ont chacun un contenu propre, même dans le cas où être signifie l'être de l'homme. Cependant, si j'arrivais à les pénétrer totalement tous les deux, je finirais par les voir coïncider en une rigoureuse unité. La visée ultime des deux mots est la même. Ils ne sont pas synonymes, parcequ'ils désignent dans un même objet des parties où des fonctions qui sont prises ensuite pour désigner le tout. Homme et être voudraient désigner la réalité en son essence vraie et complète. Savoir ce qu'est l'homme et savoir l'être de l'homme est une seule et même chose." L. B. Geiger, *La Participation dans la Philosophie de S. Thomas d'Aquin* (Paris, 1942) p. 322.

¹⁵ "... duo autem intelligibilia possunt simul in intellectu possibili existere secundum actum primum, qui est scientia, licet forte non secundum actum secundum, qui est consideratio . . ." *Summa Contra Gentiles*, III, 39.

extent indeed that it can be the subject and object of its own actions. Finally, knowledge involves that we know that we know. Every act of knowing involves a reflection on the act itself. It is as though we were making a new judgment in which the "I" is one term and the judgment the other. In reality, however, the knowing subject is taking its thought unto itself in that intus-susceptive action which characterizes life in general and, in a more forceful fashion, that highest form of life which is intelligence. The facts are irrefutable: there is something in man beyond the boundary of physics—an immanent, reflective principle which alone accounts for: a) the grasp of terms; b) the relation of the terms; c) the bi-focal character of consciousness in which two things are simultaneously present, namely, that I am I and that I know.

A philosopher like C. I. Lewis in his "conceptualistic pragmatism" is willing to go along with the scientific method. "Without the relational element which conception introduces, immediacy is inarticulate," he declares.¹⁶ Thought is but a mediator between our "interests and the given."¹⁷ If there were pure immediacy, according to Lewis, the mind would always be passive.¹⁸ Reality would be a "buzzing, chirring confusion" unless there were an active mediation between the given and further and future experience.¹⁹ But immediacy, it may be countered, does not involve pure passivity, whereas the inertial view of things in Lewis' system involves nothing but the passive. Immediacy involves a type of self-identity, a feeble form of self-possession in the objective order, and a much loftier form of this self-identity in the thinker. "Pure immediacy," in the sense in which it can be understood here, is just the converse of the passivity which Lewis suggests. It is more of "inwardness" in the Kierkegaardian or Lavellian sense. It involves having actuality from within, as opposed to being

¹⁶ *Mind and World Order* (New York, 1929) p. 276.

¹⁷ *The Pragmatic Element in Science* (Berkeley, California, 1926) p. 222.

¹⁸ *Ibid.*, p. 217.

¹⁹ He gives this point special emphasis in his latest book, *Analysis of Knowledge and Valuation* (LaSalle, Illinois, 1947).

determined, completely and by infinite mediations, from the outside. It is precisely the immediacy in both subject and object which makes knowledge possible.

A cognitive theory based on the law of inertia is most inadequate. The objectivity of knowledge and, in fact, the very nature of knowledge can only be explained and preserved by accepting the reality that in knowledge the object must do two things: remain itself and be known. Inertially, this is unintelligible, but obviously it is real. The traditional definition of knowledge in which the subject is said to *fieri aliud in tantum aliud*, to become another thing as other, removes the impasse in the universal use of the Heisenberg principle. What is important for present purposes is not so much the becoming of another thing but the becoming of another, as other, thereby remaining oneself. In physics, a cause is exhausted by its effects; it cannot remain a cause and produce an effect outside of it. In a sense, inorganic things become other, but in so doing, they lose their identity and assume that of the new thing. Food, ingested by organisms, becomes part of the protoplasm, and it thus loses its identity as had outside the living body.²⁰ But knowledge is something different. The mental food remains outside the thinker, and yet it is known.

This non-inertial reality of knowledge reflects the discontinuity in the universe which is wholly outside the reach of science. The concept of continuity is at the core of modern thought. Preached in the philosophy of Leibniz and practiced in the infinitesimal calculus which he perfected, this concept is now reaching through all the contemporary schools. Whitehead was right when he called his "atoms" actual, while potentiality—or as this discussion has phrased it, inertia—makes for the continuum, he added. The naturalists have made the continuum into an article of their faith. Mathematical logicians, attempting to found scientific method more rigorously, are holding up Dedekind and Cantor as their guides and treating the problem

²⁰ The difference between organic and physical changes even on the sensitive level is explained by M. Holloway, "Abstraction from Matter in Human Cognition According to St. Thomas," *The Modern Schoolman*, XXIII (1946) pp. 120-130.

of number in terms of the geometry of the continuum. Even Brouwer, when he breaks away from the "formalism" of Russell and Hilbert to defend intuitionism, takes as his basic view of things "a continuum of infinitely divided continua." Dialectical materialism emphasizes the continuum too by its doctrine of evolutionism and its Hegelian dialectic. Existentialism takes the continuum as a standard of intelligibility, and when it cannot make the movement from the subject to the world as consecutive as a geometrical continuum, it decides that the world is meaningless.

Allers has well stated that "As soon, namely, as the principle of a 'hierarchy of being' is abandoned and replaced by the principle of continuity, the way is opened for declaring all qualitative differences as 'mere appearances.'"²¹ In the inertial notion of truth, the faith of physics in continuity appears in the treatment of man's knowledge on the same level as the objects which it studies, and whatever is above that level is called "undecidable," in Goedel's expression, or "undefinable," to quote Korzybski. Whitehead's method of extensive abstraction, attempting to bridge the gap between thought and thing by making the first the "limit" of the second, simply applies the method of the calculus to the knowledge problem²² and tries to make a geometrical continuum out of the relation of matter to mind. In the universal use of the Heisenberg principle, no difference is observed between the order of being and the order of thought. The concept of the continuum appears once anew. It is important to bear in mind that probability equations are not conceived as predicting states distinct from the mind. They predict our knowledge of the states, the physicist insists. Any other view, Whitehead explicitly states, would have to allow entities to "float in," like Santayana's essences.

At first sight, it would seem that the notion of the quantum

²¹ "Microcosmos," *Traditio*, II (1944) p. 324.

²² For a description of extensive abstraction, cf. A. Whitehead: *An Enquiry Concerning the Principles of Natural Knowledge* (Cambridge, 1919) p. 76; p. 104; also, by the same author, *The Concept of Nature* (Cambridge, 1920) pp. 80-81.

(discrete energy-packet), which started physics on the road to wave mechanics, contravenes the continuity-principle in modern physics. Projecting the physicist's statements on the map of traditional cosmology and viewing physics in terms of ontal content rather than as a simple method, modern theories do appear atomistic and pluralistic. However, another approach may be made to the problem of structure, taking literally the lumping of the logical and ontological orders as naturalism proposes and as Carnap seems to advocate even more than Russell. In general, an atomistic, pluralistic universe would have to melt away into a continuum by its very character as infinitely divided and inert. Thus, for example, scientism and Bergsonism—the Bergsonism of fact in Maritain's language—really say the same thing though at first sight worlds apart. Obediently to the maxim, *extrema se tangunt*, pluralism and monism come to the same conclusion, that reality is a continuum. It may be suggested that there is only one philosophical error, nihilism, and only one philosophical truth, being. All error, because the mind is conformed to what is not, heads the thinker in the direction of the void.

Is the quantum theory a discretely valued system? According to strict scientific method, it is not. For the Schroedinger psi-functions, the customary equipment for treating quantum problems, finds the notion of continuity recovering its priority. The differential equations developed from these functions are ultimately analytical expressions of the continuum treated in the infinitesimal calculus and even more theoretically explored by Dedekind and Cantor. Such equations represent probability-amplitudes, whose final interpretation is in terms of continuity. Thus, contemporary quantum physics would seem to intimate the continuity approach to physics which de Broglie detects in it.²³ The variable probability-amplitudes are really methodologically—and hence in a naturalistic universe, ontologically—basic to the quantum idea. (In a more technical sense, a so-called rectangular or square wave, an apparent index of dis-

²³ *Op. cit.* pp. 239 ff.

continuity, is mathematically understood in terms of the harmonics and subharmonics of a sinusoidal and hence continuous curve.)

From another approach, to be known and to be knowable, the individual quantum would have to produce an effect or, say, tend along a certain curve which would evaluate it. Thus it is an aspect or a special case of the continuum. The same idea may be conveyed in a still different sense by considering that the single quantum must be defined in terms of a definite co-ordinate system and could only be specified within this framework. The relation between, let us say, the individual photon and its co-ordinate system must be continuously variable, as an interval, in order to be ultimately evaluated and understood. It is evident then that the apparently discrete character of the quantum does not change the continuity-principle which is ineluctably bound up with the scientific method when the effort is made to reduce algebra to analysis (the calculus) and when the cornerstone of the philosophy is taken to be the work of Dedekind and Cantor. If we fail to differentiate between content and method, as logical empiricism and naturalism propose, the continuity principle appears in the fabric of the scientific method before the patchwork of atomism is sewn on to it.

Such a continuum, as obtaining between mind and matter, would render knowledge impossible by abolishing the difference between things which are known and by reducing the knower to a radical solipsism through much the same dialectic that G. E. Moore applied in his historic refutation of idealism. The continuum of contemporary scientism can be refuted by a *solvitur ambulando* argument, if by no other, by an argument from the experience of men which has even more right to speak than the artificial experiments devised by physics and then equated with the knowable. There is a sharp break between knowledge and object. It cannot be bridged over by a continuous curve because it is really nothing. Aquinas was really saying this in the language of his day when he wrote that there is no medium between the individual and the species.²⁴ In a positive way,

²⁴ In *I Anal. Post.* 1.

this conclusion admits a hierarchy in the universe where mere counting and continuity do not take us to the deeper realities but remain at reality's surface. In a negative way, this same realism of Aquinas is an answer to empiricists who base all knowledge on induction and who simply translate continuity in their definition of a collection.

The truth in Aquinas' verdict affirms the fact that reality is not a continuum in which, after a time, a polygon grows to a circle, spirit evolves from matter, and economic determinism, by mere quantitative repetition, gives rise to new qualities.²⁵ There are interruptions in the universe. There are beings and action in it, and above all there is knowledge in which man is himself, remains himself, and yet becomes what is separated from him physically, namely, other. Only a spiritual being can really and fully leap across that gap to pierce down to the very being of another thing; for animals, though cognitive, do not grasp the inner natures of their objects. Only a spiritual being, since he is not a prisoner of space, works within the empire of being versus nothingness. The interruption in being which is, in the terminology of the continuum, a different way of saying plurality, reflects in a measure the importance of the principle of non-contradiction both in being and in the logical order. The concept of continuity is committed to deny this principle, holding that opposites can meet, *coincidentia oppositorum*. The inertial concept of truth would not leave room for the discontinuity which knowledge requires and verifies, and which, because such a discontinuity is nothing, can only be bridged by a spiritual substance, contrasting being with nothingness, understanding things in terms of being, itself, independently of outside relations, causes, and effects. If scientific method were practiced according to the letter, man and nature would plunge off their tracks into a Humean, Heraclitean flow. But the physicist, as a rational animal, does not go to these limits. He

²⁵ For studies on the relation of the quantitative continuum to quality, cf. J. Lalor: "Notes on the Limit of a Variable," *Laval Philosophique et Théologique*, I (1945) pp. 129-149; and C. McFadden, *The Metaphysical Foundations of Dialectical Materialism* (Washington, D. C., 1938).

gets off the train at the last station to build another substation in the direction of the limit, approaching but never reaching the endless, aimless flow to which scientific method in its strictest form would logically lead. Continuity between matter and subject is contrary to the nature of knowledge.

IV

The value and meaning of the law of inertia cannot be discussed here. Whatever its scope, it would eliminate all knowledge by proclaiming everything to be inert. Thus by a devious pathway through modern physics and the measurement or operational theory of truth, there must be affirmed something which lies beyond physics, which is, as opposed to not-being, and which is actual, as opposed to being inert. Knowledge is only possible in the light of the world that is. Nothing could ever be known about a world that in a continuum of inert, mediating forces merely has being, since knowledge is possible only in a world of immediacy. If the physicist but make the metaphysical concession that he measures something or that something is, he accepts the point of departure for a whole chain of consequences that make his work meaningful in a meaningful world. The very nature of cognition impels us to a denial that the uncertainty principle represents an objective indeterminism or that measurement alone is meaningful. Indeterminism can only prevail within the narrow, subordinated limits of a scheme that does not study things as they are but in terms of what they are not, namely, what is outside of them. Being is not indeterminate. It does not yield before our *fiat*, letting us make of it what we will. It resists us when we reach out to touch it. It repels our efforts to subject it. It stands fast. It is. Man combined nature in new ways to make the atom bomb; but nature herself did not take it to Hiroshima; man had to fly there, and if he used an automatic pilot, he had to set it properly. A V-2 rocket, capable of bearing an atom bomb from pole to pole, would show nature as still resisting and commanding man by forcing him to push a button in the launching mechanism.

In order to affirm that the universe is indeterminate, the physicist would have to adopt a standard in the light of which he judges this indeterminism to exist. The result is really a dilemma. If the standard of the physicist is subjective, then the indeterminism itself is subjective. That is what genuine philosophy has emphasized. On the other hand, if the standard of determination, in the light of which the world is said to be indetermined, is objective, then obviously the whole universe is not indetermined. At least this standard must be objective. The dilemma cannot be averted, and from either horn, indeterminism, like the rest of science's entities, holds with respect to a co-ordinate system. It is thus local and not universal. It is relative to a frame of reference and not absolute.

The physicist is inclined to say that universal indeterminism obtains in reality, but that, in the macrophysical order, it is so small as to be negligible. The meaning of the Bohr correspondence principle is that quantum physics approaches classical physics (asymptotically) when the energy of a system becomes high. But why is it said that the macrophysical order is closer to what is meant by determinism than the microphysical domain? How can there be an asymptote unless there is something definite and determinate to approach? If there are degrees of order, there is order. Certainly if there is a determined standard or asymptote, certainly if there are differences and relations, this is not a continuous universe. In a more positive sense, the physicist cannot make a statement without specifying his co-ordinate system (frame of reference) with respect to which the statement holds; he must specify his co-ordinate system with respect to which the indeterminism occurs. This is the sense of Heisenberg's own example, already cited, in which the microscope is one co-ordinate system which in turn is specified by another, and "so *ad infinitum*." How can there be a plurality of co-ordinate systems really defined and rigid in an indeterminate universe?

The method of physics thus imitates its general notion of the real. One thing is said to be or not, to be current, resistance, stress, an electron, an atom, with respect to a given co-ordinate

system or systems, the outside forces which specify them and thus make them definable. Being is viewed not in itself or, what is equivalent, with respect to nothingness. It is viewed not as intelligible of its own nature but with respect to a given system of coordinates. Hence, indeterminism is relative to a determinate frame of reference and becomes a merely relative, restricted, local, and one may say, logical or methodological indeterminism. Determinism prevails in the objective world by its very nature as a discontinuum of being versus nothingness. Things are what they are; they do not flow into one another.

Parenthetically, it may be asked how the philosopher interprets being. What is his co-ordinate system? The answer could be developed that he interprets being in terms of itself. For he does not, *ad infinitum* in a meaningless, unrealistic continuum, establish a co-ordinate system which is specified by another and this, in turn, by another. His co-ordinate system of being is specified with respect to nothingness. The regression comes to an end. This does not mean that he equates being with what is not but that he interprets being with respect to what is not, namely, by contrast with the non-being. Since the non-being does not exist, since nothingness is, as its name implies, nothingness, the philosopher is really interpreting being with respect to itself. This is just another way of saying that being is intrinsically intelligible, a fact that scientific method, with its meaningless continuum of relational structure, confirms by its impasse. It may also be added that what is discrete cannot be handled at all scientifically, and that is why the quantum is taken in a statistical ensemble where the continuum characterizing the aggregate recovers what is not scientifically accessible in an abrupt and independent individual.

Indeterminism thus turns out to be a subjective and subordinated fact. But does not the theory of relativity rescue physics from this logical and localizing limit? Without the rather involved analysis of the reasoning of Einstein and the experiments which tend to confirm his views in physics, the two chief tenets of relativity mechanics may be simply stated: (1) According to the restricted theory of relativity which has to

do with uniform, translatory motion, all Galilean co-ordinate systems are equivalent; (2) in the general theory of relativity, involving systems of non-uniform, rotary motion, all Gaussian co-ordinate systems are equivalent.²⁶ At first sight, it would appear that the theory is general. But it is only logically and not ontally universal. Ontally, it is localizing. It requires, for example, that any event must be specified by its co-ordinate system; what is simultaneous or spatially co-incident in one frame of reference may not be so with respect to another. Just as indeterminism was found to exist with respect to a specific co-ordinate system but not absolutely, so space and time are measured in their relation to a given frame of reference and never absolutely. Thus it is already obvious that relativity mechanics localizes the measures of physics even more so than the classical system.

The general statement of relativity argues to continuity in the universe. It has incorporated the so-called space-time continuum of Minkowski. Space, following the laws of Gaussian arc-elements, is viewed as curved and is therefore said to be anisotropic, different at every point. Just how the anisotropic space really implies discontinuity because it is different from point to point, belieing what is presented to a space-time continuum, would form a parenthesis too long to open here. Actually, in the curved world-lines of Gaussian geometry, every "point" is different from every other "point." Every small element, different from the rest, is further divisible into heterogeneities. Every point in matter is thus radically local.²⁷ It is local or anisotropic with respect to what is external to it, the

²⁶ Cf. H. A. Lorentz, A. Einstein, and H. Minkowski: *Das Relativitäts-Prinzip, eine Sammlung von Abhandlungen* (Leipzig, 1922).

²⁷ "Der metrische Charakter (Krümmung) des vierdimensionalen raumzeitlichen Kontinuums wird nach der allgemeinen Relativitätstheorie in jedem Punkte durch die dasselbst befindliche Materie und deren Zustand bestimmt. Die metrische Struktur dieses Kontinuums muss daher wegen der Ungleichmässigkeit der Verteilung der Materie notwendig eine äusserst verwickelte sein. Wenn es uns aber nur auf die Struktur im grossen ankommt, dürften wir uns die Materie als über ungeheure Räume gleichmässig ausgebreitet vorstellen, so dass deren Verteilungsdichte eine ungeheurer langsam veränderliche Funktion wird." A. Einstein, *ibid.* p. 135.

frame of reference which makes it meaningful to the physicist. Like the rest of the entities of physics, it is thus measured with respect to what is outside of it, its co-ordinates.

Despite its pretensions as the most general statement of the structure of the real, the theory of relativity, by its notion of equivalent co-ordinates and transformation *equations*, is of no help in relieving quantum physics of that limit which localizes its interest and its value, namely, that indeterminism exists not objectively and absolutely but with respect to a frame of reference like a microscope. In fact, the principle of relativity insists, in both its restricted and general phases, on an even more localizing character in the scientific method.

What is represented by the Heisenberg physicist in his world view, if he is a positivist, is an indeterminate being with respect to a determinate being. Indeterminacy is thus understood logically and psychologically after the fashion of negative concepts, like non-being, and negatively known realities like prime matter and the infinite. Such realities are known by comparison to experience; with the proper abstractions made to develop the negation in the conceptual order. The physicist, because he cannot be a pure physicist, must violate the principle of inertia. He represents the determinate and then, by contrast, the indeterminate, having as it were two ideas before him at once which he compares not sensistically, where only one thing is known at a time, but seeing and judging the interiorities of things which intellectual action attains. As Meyerson says, metaphysics comes as natural to the physicist as his breath, and as Aquinas says the habit of first principles is innate.

The revolutions in physics have been crises in method, purifying the science and enabling it to emerge with greater clarity for what it really is. Genuine philosophy, unafraid of truth wherever it is, should welcome this purism on the part of physics; for the more its method stands out in its true nature the more it can be truly evaluated. In this sense, it is much easier for traditional thought to confront contemporary physics than it was when the science continued in its Galilean-Newtonian form where it was so beclouded by ideas alien to its

purity that its true nature could not be brought sharply to focus for genuine assessment. Philosophers might be more successful in controversy with the modern positivist and naturalist if instead of opposing his scientism they would ask him to follow his method more rigidly to see, as Plato said, whither it leads. Physics would turn out to be meaningless, taken in itself, and it would not be found returning to and rejoining, like every process of verification, the initial experience, hard and stable, which serves as its point of departure. The initial experience, in obedience to inertia, has vanished in the process of being empirically explained. Equated with its causes, it is no longer there for the scientist to return to it, and in such a light, what is left of scientific proof?

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BOOK REVIEWS

La double expérience de Catherine Benincasa (Sainte-Catherine de Sienne).

By ROBERT FAWTIER and LOUIS CANET. Paris: Librairie Gallimard,

1948. Pp. 368. Fr. 550.

This is an important book—not important for what it is in itself, but for what it connotes. The authors are Catholic laymen of the most erudite attainments in their respective fields: M. Fawtier in history; M. Canet in the history of Christian thought. It is not a joint work, for the former treats of Catherine's human experience, the latter of the spiritual aspects of her life. While their views are sometimes at variance, there is, nevertheless, a striking note of unity. A brief evaluation of the work of M. Fawtier appears in a recent issue of *The Catholic Historical Review*. A few observations there made should receive more extended notice here.

M. Fawtier is no stranger to St. Catherine, and he professes the utmost admiration and veneration for her. In his *Essai de critique des sources* (2 vols. Paris, 1921-30), however, he provoked sharp criticism by the animus and violence of his attack upon the early biographers of the saint. He also touched off a scholarly restudy of the sources, many of which have since been published for the first time, and others may follow. From what have appeared up to now, it is apparent that he has won this battle against certain somewhat exaggerated (and, incidentally, undefended) estimates of the political rôle the saint played in the life of her times. But the rôle was not inconsiderable; Catherine cannot be eliminated therefrom (cf. Noële M. Denis-Boulet, *La carrière politique de Sainte Catherine de Sienne*, Paris, 1939, which M. Fawtier cites with approval, and Arrigo Levasti, *S. Caterina da Siena*, Rome, 1947). In his attack upon the reliability of the hagiographical sources, however, M. Fawtier failed completely (cf. Denis-Boulet, *op. cit.*, 33, and M. H. Laurent, *Il processo Castellano* fasc. IX in *Fontes vitae S. Catherinæ historici*, Rome, 1942).

Nevertheless, M. Fawtier returns to the attack, chastened by the events of 1940-45, more mellow, but still aggressive and at times petulant if not violent. On April 29, 1942, the anniversary of St. Catherine's death, the Gestapo came to his home in the middle of the night. Three years later, almost to the very day, he sought hospitality in Switzerland, after a harrowing experience in Nazi concentration camps. Three years of meditation on the strange coincidence that deprived him of his liberty on that particular day determined him to stand like Catherine, firm in his convictions, and write a life of the saint, whether it was worthy of her or not.

We may admire his courage, but not his tenacity. Scholarship and erudition should recognize that history deals with facts. A Catholic scholar,

however critical, must take note of facts that the philosophy of the materialist and the Deist and the Protestant may refuse or fail to recognize. The supernatural life, the mystical life cannot be ignored. And this is not merely a question of miracles and the medieval attitude toward them. Saints are not ordinary folk. There are extraordinary men and women whom God has raised up for a definite work in the world under His provident care of mankind, and especially of His Church. The saints, above all mystics, are men and women in whom the supernatural life is in full operation, for it is dominant and it governs in diverse ways their natural and ordinary activities. To repeat, it is not merely a question of supernatural phenomena—whether this or that was a miracle, whether it really happened, or whether the credulity of the witness was excessive. It is a question of whether or not the spirit of God is at work, and of this exceedingly few are competent to judge.

Now, the supreme authority in the Dominican Order, the General Chapter, after investigating Catherine, recognized the spirit of God at work. The Master General of the Order committed her to the direction and guidance of one whose competency was beyond cavil. Later, the Holy Father confirmed the action and choice of the Dominican General. Later still, the Church officially raised Catherine to the altars for public veneration and has, since M. Fawtier launched his initial attack on the story of her life, made her Patroness of Rome, second only to the Blessed Apostles Peter and Paul. The Church has also raised to the altars the director of Catherine. A passing reference to these facts is not sufficient. The implication of the facts in the life of the saint and in the course of events must also be acknowledged.

For a Catholic historian, therefore, to limit his study to the *human experience* in the life of the Sieneze mystic precludes the very possibility of presenting an accurate historical picture of her. And then, the attempt to split her in half—M. Fawtier painting one side, the other to be painted by a colleague—is to assure a caricature. The English speaking world was recently subjected to something of the sort in a book inspired by the earlier labors of this self-same M. Fawtier (cf. *The Greatest Catherine*, by Michael de la Bedoyere). The author tried to finish the picture and gloss over its defects with common, not Catholic, sense. A personality cannot be spilt: one side natural, the other supernatural. The natural is elevated, perfected, transformed by the supernatural. A Catholic historian must understand this in all its implications and ramifications, and if he turns hagiographer it is a condition *sine qua non*. M. Fawtier has failed miserably, and it appears that he knows it.

Consequently, the whole human aspect of the life of Catherine is here presented in false light. For instance, although M. Fawtier restates his position more positively, more calmly, more objectively here than in his

critique, he is shocked because Catherine lived in the ideal, not the real world: she is concerned solely with *moral* evil and not with the *physical* miseries of the masses. She is a *sainte pour signori*, so conveniently can he forget her heroic ministrations to the sick. And he is scandalized when Catherine, burying with her own hands a little nephew who had succumbed to the plague despite her personal devotion, said joyously: "This one will not escape me." Moreover, M. Fawtier makes his judgments and solves controverted points according to human standards alone. A few examples will suffice to illustrate the point.

The date of Catherine's birth can only be approximated. Strangely enough, it is all important, for it is the crucial point of M. Fawtier's attack upon the reliability of Catherine's first biographer. All the evidence points definitely and uniformly to about 1347. M. Fawtier insists that she is ten years older. Why? Ultimately because he thinks the remorse of conscience the saint experienced throughout her life is proof that there was a serious breach of fidelity in once making herself attractive to please her sister. He thinks she was at that time already a member of the Third Order (which is contrary to the evidence). Her breach of fidelity, therefore, consisted in laying aside the habit of her Order, and that was a violation of the oath secular tertiaries were in those days required to take. Now, of course, there is no such thing as the delicate conscience of a saint. Saints, knowing so well the gravity of sin, see in their own personal faults almost unpardonable crimes. And Catherine was a mystic, and she is judged by the standards of the man in the street. Anyhow, M. Fawtier contends, Catherine must have been older: she would not have been able to direct and dominate her *famiglia* unless she were more mature than her biographers assert. Among her disciples were men of varied and exceptional cultural, intellectual, and spiritual attainments—they would not have followed a young slip of a girl nor have called her *dilettissima Mamma*.

Then again, in M. Fawtier's eyes, Catherine was just a good girl who stayed at home and said her prayers, who in her early years lived like other people with all their interests and curiosity. Why? Because, despite the evidence, the Rule of the Third Order called for no rigorous or violent asceticism; in fact, it discouraged excess. M. Fawtier sees no need of generosity for progress in the spiritual life, and Catherine scaled the heights of the mystical life. He does not deny the evidence of her union with God. On the contrary, he sees in this very fact further proof of a normal attitude towards ascetical practices. Catherine could have been no emaciated, ragged, macerated, hair-shirted person. Even a silly friar does not fall in love with such a girl; and one, having been spurned and having been foiled in his design to assassinate her, cut his throat when he discovered that he had a Rival to Whom she was espoused.

Now when this sort of hagiographical writing is applied to the important

events of Catherine's life, when she is enmeshed in the toils of what we today call world affairs, M. Fawtier thinks she has no knowledge of complicated political situations. She becomes a pitiful plaything in the hands of papal and civil politicians, and she has but one solution (a moral one) to all problems. She is duped and deceived by all, even by two popes. She is a complete and abject failure, for she had nothing to offer but her unwanted counsel and her prayers. If she accomplished anything, it was in some other sphere than in the human.

In appealing his case—a case that has been all but definitely settled and which will certainly be definitely adverse once the remainder of the sources becomes readily available—M. Fawtier has submitted no new evidence. Considered as a rebuttal, his case is lame. He turns for support to a colleague, realizing his inability to give expression to his concept of the spirituality in Catherine's personality. The historian seeks the aid of a theologian, and gives him, as will be seen, some clues upon which to work. What is the significance of this?

Let this simple fact be noted here: M. Fawtier has throughout his several works on Catherine, consciously or unconsciously, sought to isolate her from her Dominican connections. He discovered that many Dominicans were suspicious of her, that very few followed her with interest. Still fewer were numbered among her disciples; and these, he contends, by their tales and inventions created a personality that is unreal. She had no influence upon her Order in life, and after death the Order only came to be interested in her when, by the labors and propaganda of the creators of the unreal Catherine, the unhistorical came to be accepted as authentic because useful: as a support for the Roman party in the Great Schism; as a means of securing approval of the Third Order; and as a mystic rival of St. Francis of Assisi.

Now Catherine was a reformer. She was but a babe in arms when the Black Death swept over the Italian peninsula. By the time she was twenty, its appalling effects upon clerical and religious life had come to harvest, for to meet the need of administering to souls a full generation of candidates hurriedly and unwisely chosen had had time to sow their tares. Catherine's mission was clear. What sort of a reformer was she?

Since her historians have not given us the real picture, and since history will not or can not unmask the fraud, something more than probability may be found in theology. The tactics are reminiscent of what took place in the early part of the sixteenth century—but in reverse. Then, the reformers of the Church turned from doctrine, after their defeat, to the early Church and to scandalous history in an attempt to sustain their contention that the Church had strayed in doctrine and in morals during the course of the centuries. Now, an historian, an admirer of a reformer, turns to a theologian for support in sustaining an historical thesis that is untenable. Why did he choose M. Canet?

In the second part of the book, M. Canet paints a picture of the natural disposition and personality as he sees Catherine in her writings. He then treats of the sources of her doctrine, and finally systematizes and expounds it. The picture is not attractive. It looks like what M. Fawtier saw more than twenty-five years ago. But M. Fawtier has now touched up his half of the picture, but not so M. Canet. For him, to sketch briefly what he saw, Catherine preached, she reproached, she would suffer no contradiction. The General of the Dominicans placed her under the direction of Raymond of Capua, but within less than two years Catherine was in the saddle, directing her director, commanding him as well as her disciples. In the last year of her life, she hurled bitter invectives at Raymond. Within a few months of her death, on behalf of God, she complains of and reproaches all mankind. She was ever anxious to come to blows with the devil, but she was generally more adroit in dealing with the weaknesses of human nature, although she could not restrain her impatience with Stefano Maconi, one of her secretaries. Despite whatever good will she manifested, she remained sharp and strained, solemn and monotonous, sententious and counseling, imperious and sarcastic. Her insupportable "I will," instead of inclining to obedience, incited rather to rebellion. And her letters, written, perhaps between the ages of fifteen [?] and thirty-three, manifest, to say the least, a certain self-assurance. Her writings, filled with allegories that are fatiguing and antiquated, are sometimes shocking to our sense of delicacy. And yet, in spite of her awkward and faulty style, "it is impossible to read her works, when one has had the will to force himself to do so, without recognizing in them one of the highest, the most original, and the most powerful expressions that has been given to Christianity" (p. 246).

As to the sources of Catherine's doctrines: M. Canet rejects the scholastic, Aristotelico-Thomistic invention of "infused knowledge." Her doctrine, he says, is drawn from St. Augustine. Three words suffice to define it:

An Augustinianism without predestination, in which the reign of divine grace is affirmed without impairing the sovereignty of the human will; in which nothing is produced except by God, but by a God Who in all things makes Himself voluntarily the servant of man; in which, consequently, the Church is invited to renounce the pomps of this world to conform herself to the example of the Son of God—Who had not whereupon to lay His head—since, being scarcely nothing, she must after His example be love, for "she is founded in love, and is love."

Here is no trace of the new doctrines in which Aristotelianism borrowed from the Arabs combined with the neo-Platonism of the pseudo-Denis to represent the charity of God as a transcendental egoism. There is not in St. Catherine one word, I say one single word, that betrays a specific Thomistic influence, still less an influence of Eckard. The charity of which she sings is free from all contamination with *êpos*; it is pure *ἀγάπη*, drawn directly from Christ through the Pauline epistles and the writings of St. John, through St. Augustine and the lone line of his

spiritual sons, among whom are reckoned St. Dominic and the first Friars Preachers (pp. 248-9).

There are three currents by which this "pure Christianity" in the Augustinian tradition was carried to Catherine: 1) the Franciscan, brought to her by Giovanni Columbini (who founded the Jesuati and renewed the Franciscan ideal) and transmitted by means of the family connections of the Columbini and Benincasa; 2) the Cistercian current, under the original form given to it by St. Bridget of Sweden, and which reached Catherine through Alfonso de Valdeterra (who was confessor to Bridget and in contact with Catherine) and Christofano di Gano (a disciple of Catherine and the translator or transcriber of Bridget's *Revelations*); 3) the current transmitted: a) by the primitive and persistent Dominican tradition; b) by the Hermits of St. Augustine of Lecceto; c) by the Carthusians of Maggiano and Gorgona; d) by the liturgy of the Church (pp. 252-71).

In her communion with the Interior Master, Catherine came, in the light of the teachings she had received, to experience and to taste divine realities. She was not interested in philosophy and theology; she professed no theory of knowledge: "She was a simple child, who saw in Christianity, not a system of concepts, a combination of formulas, a solemn uproar of words, but a discipline of life in which she found, so fully that it would have been useless to seek any substitute for it elsewhere, the solution of the problem that faces every man coming into this world when . . . he commences to take cognizance of himself" (pp. 276-7).

M. Canet then proceeds to an exposition of Catherine's doctrine. To present it here in outline would do justice neither to the author of the book nor to the reader of this review, for it is a work of the most profound erudition and scholarly research in the field of medieval, in fact of all, mysticism. But excessive, almost exclusive, concern with the symbolic, the metaphorical, the poetic, colors the content and blinds the author to the grandeur and depth and orthodoxy of Catherine's thought. Contempt for theological speculation inclines him to consider mystical theology as the *only* valid means of obtaining a knowledge of God. The difference in terminology between speculative theologians and spiritual writers is mistaken for radical opposition in doctrine. These postulates involve M. Canet in serious difficulties and make it impossible for him to understand some of the most fundamental theological concepts, to say nothing of Catholic doctrine. And be it noted well, and kept ever in mind, *there is not in this book one single reference to the defined doctrine of the Church*. Catherine had a profoundly orthodox and theological mind endowed with virile power and feminine intuition. Can M. Canet, then, have given an authentic interpretation of Catherine's teaching?

The admitted reluctance, moreover, with which M. Canet assumed his task can hardly inspire confidence in view of what M. Fawtier wrote:

Il est à souhaiter que quelqu'un au courant de la mystique fasse une étude comparée de celle de Catherine et de celle de la princesse [Brigitte] suédoise (*Critique: Sources hagiographiques*, 183 n. 4, 184).

Il serait à souhaiter qu'un théologien de métier étudîât la doctrine de Catherine et nous dise si celle-ci est purement et exclusivement dominicaine ou si, au contraire, on y discerne des éléments étranger dont il faudrait alors déterminer l'origine (*Critique: Œuvres*, 349).

Catherine a-t-elle subi l'influence columbienne, c'est un problème qu'il conviendra de résoudre quand on étudiera sa pensée . . . Seule, il est vrai, l'étude de la pensée catherinienne nous permettra de savoir s'il y a vraiment eu influence, mais les moyens matériels, pourrait-on dire, pour l'exercice de cette influence, existent et de bonne heure (*La double expérience*, 56-7).

The suspicions of M. Fawtier have not been remarkable for their verification in the field of history. At any rate, M. Canet thoroughly explored the fields suggested. But might not one wonder whether M. Canet, in view of his attitude towards theology and the theologians, is the *théologien de métier* who should assume this difficult and delicate task?

Catherine's striking analysis of the Franciscan and Dominican spirit (*Dialogue* 139 [158], *DA* 296-301),¹ the love and admiration she so frequently manifests in her writings for the learned who are saintly doctors, and the beautiful tribute she twice paid to St. Thomas (*D* 139 [158] and 96, *DA* 300-1) should have made M. Canet somewhat cautious. However, it has been all but taken for granted up to now that Catherine was definitely in the Thomistic tradition. True, Pourrat, in *Christian Spirituality during the Middle Ages* (II, 207-8 n. 4), is somewhat reserved. Gorce, in *Dictionnaire de spiritualité* (II, 327-47), drawing upon specialized studies of

¹ For the sake of brevity, reference will hereafter be made to Catherine's writings as follows: *D* = *Dialogue*, chapter number. There is no complete edition in English. Where the chapter enumeration, therefore, is not in accord with the Italian and French editions, the latter will be given in brackets []. *DA* = abridged English editions of the *Dialogue*, reference being to page when the passage appears in the abridged editions. *L* = *Letters*. Following the device of Fawtier-Canet: the first reference is to the edition of Gigli; the first, in brackets, is to the editions of Tommaseo and of Misciatelli; the second, in brackets, is to Letters that may have appeared in the critical edition of Dupré-Théseider, only one volume of which has been published. The last reference, which is preceded by S, is to the page in Vida D. Scudder's translation of about eighty select Letters, published under the title: *St. Catherine of Siena as seen in her Letters* (London-New York, 1905). Since the Italian and French editions of the writings of St. Catherine are all too frequently unavailable in America, excerpts and references will be confined to what has appeared in English translation. This is not wholly satisfactory, nor are the translations. Ample evidence, however, can be discovered of Catherine's real teaching in English, and where sense has been sacrificed to style a more accurate and literal rendering is offered.

her teaching, discovers considerable originality in what is basically and essentially Thomistic. He appears to have been unaware of the only study that has been made up to now on "Il tomismo di Caterina da Siena," by Mariano Cordovani, O. P., Master of the Sacred Palace, in *Vita cristiana* (V (1933), 129-42), which was reprinted in *Breviario di perfezione* (Firenze, 1943, 33-41), and again in the introduction to the critical edition of the *Dialogo della divina provvidenza* (ed. Taurisano, Roma, 1947, xlv-li). Cordovani places Catherine definitively in the Thomistic tradition, marvels at her understanding and assimilation of the thought of the Angelic Doctor, and calls for an edition of the *Dialogue* annotated with references to St. Thomas.

As noted above, however, M. Canet comes to a quite different conclusion. It will be necessary, therefore, to examine here what M. Canet considers the central point of Catherine's doctrine, pending the completion and publication of a thorough study that has long been in preparation (cf. Taurisano, *Dialogue*, xxxiii).

According to M. Canet, the central theme of Catherine's teaching is that God made us free and endowed us with sovereign liberty (p. 300), so sovereign that man is independent of God in the exercise of his freedom. Therefore, when Catherine repeats after St. Augustine: "I created you without yourselves, but I will not save you without yourselves," M. Canet jumps at once to the conclusion, "Absolute denial of all predestination" (p. 294). Grace does not annihilate man's freedom: grace is his, it was given to him by God, and he is independent of God in the use he makes of this gift (pp. 302-5, 329). Original sin was the sin of Adam: in his descendants there is but the mark, and this mark is removed in Baptism. Hence, though man was weakened by the Fall, freedom was fully restored (pp. 302 n. 3, 332-3, 362 n., 364 n.). So free, so sovereign is man that "each, in departing this life, takes possession of his lot without even waiting for sentence" (pp. 317-8). "There is in this system," says M. Canet, "a remarkable attempt to spare God the responsibility of damnation and to save His Goodness the burden of hell" (p. 318). Thus, Catherine also denied reprobation of the wicked.

The truth or falsity of these doctrines is not here at issue. The point is simply this: did St. Catherine teach such doctrines as M. Canet attributes to her? Certainly it would appear difficult to read more vicious teachings into the writings of a saint. Catherine most assuredly taught freedom of the will, and she insisted upon it. She wrote no treatise on the subject, but throughout her *Letters* and throughout the *Dialogue* we meet with this refrain, whether it is on her own lips or addressed to her by the Eternal Father: "Will alone can hurt us; and as for the will, neither demon nor creature can move it, nor force it to one least fault more than it chooses" (L 317 [348], S 318). "Which will neither devil nor creature can move,

because it is yours, given by Me with free arbitration. You, therefore, with free arbitration, can hold it or leave it according as you please" (*D* 43, *DA* 119).

It should be noted at once, however, that nowhere does Catherine exclude movement of the will by God. And that is precisely the point that M. Canet overlooked or ignored. By misunderstanding the full import of Catherine's oft-repeated conviction that she was *quella che non è*—"she who is not"—and by attributing to human nature a perfection that it does not in fact possess, he restricts God's efficient causality to the gift of existence and to conservation, which is a continual creation (p. 287). Existence, he says, "is borrowed. We do not have it of ourselves: it was given to us by God, and in this sense, and in this sense *only*, are we to understand that we are not" (p. 283). He considers the *principles* of action with which God has endowed His creatures as sufficient completely to account for their action. His preoccupation, therefore, with God's final causality (also grievously misunderstood), furnishes a fertile field for attributing to Catherine a position she did not hold, i. e., an autonomous self-determining creature. Such a concept emasculates her most sublime thoughts and makes of her humility, and of her insistence upon humility as the foundation of the spiritual life, a blatant sham.

Her humility was authentic. Her thought was profound. God is for her not only transcendent; He is also immanent—immanent in all creation, immanent in every act of His creatures. "I am Who am, and you are not in yourselves, but only in so far as you have been made by Me, Who am the creator of all things that participate being" (*D* 18). "Everything that has being has proceeded and proceeds from Me. My power is inestimable, and with My power and virtue I govern the whole universe, and nothing was ever made or governed without Me" (*D* 23). "I give you what you need, because I give you that hunger and the voice that cries out to me" (*D* 107). "I am Who am, and nothing is done without Me, except sin, which is nothing, because it deprives the soul of Me and of every good by depriving it of grace" (*D* 46). Everything that partakes of the nature or property of being is caused by God. There is but one thing of which God is not the cause: "sin, which is nothing"—*no*-thing, a privation of being.

Catherine, therefore, understood very well and taught that God moves us to act. And what is more, she understood that God *predetermines* our acts, and incidentally she tells us whence she received her doctrine. In a letter to Raymond of Capua, her director, to whom the Holy Father had entrusted a delicate and dangerous mission, but who followed the safer course, she wrote:

Where is the faith that you always used to have and ought to have, and the certainty that you have had, *that before a thing is done, it is seen and determined* in the sight of God—not only this, which is so great a deed, but *every least thing*?

... I do entirely wish that you had gone. Nevertheless, I hold me in peace, because I am certain that nothing happens without mystery (*L* 101 [344], *S* 327-8).

We should be "co-workers with His grace, and not undoers or spoilers of it" (*ibid.*). The whole letter is redolent of the mystery of the power of man's weakness to hinder the good that God wills to accomplish through us. We are undoers and spoilers of it.

How unravel the mystery? Catherine made no attempt; she simply accepted the facts. We are wholly dependent upon God for our being. Our continued existence, our every act, and every grace at every moment comes from Him. Our every act has been predetermined by Him, even every least thing. And yet we are free, and "He wishes us to dispose our free will with free arbitration, utilizing the time with true virtue" (*D* 23). But we can hinder the actual accomplishment of the good that God wills for us. In a letter to the Eight of War at Florence, she writes: "I beg of you not to choose to hinder the grace of the Holy Spirit, which by no merits of yours He by His clemency is disposed to give you" (*L* 197 [230. LXXII], *S* 174-5). Unfortunately, it is a fact that we can and do hinder God's grace. Indeed, the *Dialogue* is nothing but a series of instructions on how sinners and all who are struggling in the various stages of their strivings after perfection should dispose themselves so that they be not spoilers of God's grace. It was the conviction that men can and do resist God's grace that sent her, a young and frail girl, out into the world of men to save them from their folly, for we are in God's hands either through mercy, or through justice for our sins (*D* 18, *L* 31 [310], *S* 282).

She recognized, however, that there is a grace, a movement of the soul that comes from God, which man does not in fact resist. He can, but he does not. The efficaciousness of this movement is most beautifully portrayed in the conversion of St. Paul, concerning which the Eternal Father addresses her:

It being pleasing to My goodness to make of him [*Paul*] a vessel of election in the abyss of Me, Eternal Trinity, I dispossessed him of Myself, because on Me no pain can fall, and I wished him to bear pain for My name. Therefore, I placed before him, as an object for the eyes of his intellect, Christ crucified, clothing him in the garment of His doctrine, binding and fettering him with the clemency of the Holy Spirit, with the fire of charity. And, as a vessel disposed and reformed by My goodness, because he made no resistance when struck, he said: "My Lord, what doest Thou wish me to do? Tell me what Thou doest wish me to do, and I will do it" (*D* 83, *DA* 179).

In her letters, she frequently invokes this grace upon her correspondent, as, for instance, in a letter to Gregory XI, when she wrote: "My soul desires with inestimable love that God by His infinite mercy may take from you all passion and lukewarmness of heart, and re-form you another man, that is, by the re-formation of a burning and ardent desire; for in no other

way could you fulfil the will of God and the desire of His servants" (L 13 [255. LXXI], S 234). She encourages a recent convert, Ristoro Canigiani, to ask for this grace: "Since He gives us so much without our asking, how much the more will He fulfil our desires when we shall desire a just thing? Nay, *who makes us desire and ask it?* Only He. Then, if *He makes us ask it*, it is a sign *He means to fulfil it and give us what we ask*" (L 229 [266], S 201).

In the italicized phrases of the above quotation we see this grace at work. So also in a letter to Sister Daniella, when she writes: "He has acted with such grace and mercy that He has placed us in the number of those who have advanced from the general to the particular light, that is, *He has made us choose the perfect state of the counsels*" (L 165 [316], S 295). Responding to the impulse of this grace, and echoing the sentiment of the Secret of the Mass on the Saturday before Passion Sunday and again on the Fourth Sunday after Pentecost (*ad te nostras etiam rebelles compelle propitius voluntates*), she cries out in touching terms:

I beg of Thee that Thou wilt do mercy to the world and to the holy Church. I pray Thee to fulfil that which *Thou didst cause me to ask Thee*. . . Thy Truth told us to cry out, and we should be answered; to knock, and it would be opened to us; to beg, and it would be given to us . . . Wherefore, open, unlock, and break the hardened hearts of Thy creatures . . . Give, then, the fruit of Thy Blood to Thy creatures . . . Thou hast said, Eternal Father, that through the love which Thou hast for Thy rational creatures, with the prayers of Thy servants and with their many labors sinlessly endured, Thou wouldst do mercy to the world, reform the holy Church, and thus give us refreshment. Wherefore, do not delay . . . To Thee, Eternal Father, everything is possible, and even though Thou hast created us without our own help, Thou wilt not save us without it, I beg of Thee to *force their wills, and dispose them to wish for that for which they do not wish*. And this I ask through Thy infinite mercy (D 134, DA 278-80).

It may be objected that meaning is being read into the writings of Catherine that is but accidental to her thought or really not intended. Such a contention is groundless. This is evident when we see her interrupt the torrential flow of her language to state her meaning in more precise and exact terms. The Eternal Father is addressing her: "Thou didst ask of Me with anxious desire (or rather I caused thee to ask in order to increase the fire of My love in thy soul)—thou didst make four petitions" (D 147 [166], DA 326).

Though this movement of the soul by God generally appears as something passing or ephemeral, it also appears under the aspect of something permanent with respect to those who have attained to the unitive state under the influx of this grace. The Eternal Father tells her: "As their will is not their own, but becomes one with Mine by the affection of love, they cannot desire other than what I will. Although they desire to come to Me, they are contented to remain, if I will that they remain, with their pain,

for the greater praise and glory of My name and the salvation of souls" (*D* 84, *DA* 180).

We might conclude from the foregoing passage that, although Catherine does not say so in express language, she considered free will attains to its perfection, becomes really and truly free, only in so far as it permanently comes to choose the good that God wills the soul to have. That is manifestly her thought, because she writes of a fourth stage in the ascent of the soul to God, the fourth not being separated from the third, but united to it, and this fourth stage consists precisely in complete conformity of the will of God (*D* 78). To whom does God grant this grace that can be, but is in fact not resisted? The Eternal Father tells her: "No one can escape Me: they are either in Me through justice for their sins, or through mercy. Open the eye of thine intellect to gaze into My hand . . . See now and learn that no one can be taken from Me; for all are here either through justice or through mercy" (*D* 18).

They to whom God shows mercy—they are moved by God efficaciously, infallibly to the end for which He destined His creatures. In other words, God through His mercy moves infallibly to the possession of eternal life the souls He has chosen. That, of course, is predestination. And Catherine taught predestination, despite M. Canet's assertion to the contrary. "Glory and infinite good are rendered to My elect ones [*elettî*]" (*D* 42, *DA* 116). "To each one has been given light in the holy Church according to the position to which I have elected him [*Io l'ho eletti*]" (*D*. 119, *DA* 244; cf. *D* 110, *DA* 227-34). "Now if the soul were not in this condition, but were truly humble and not presumptuous, she would see clearly that I, the primary and sweet Truth, grant condition, and time, and place, and consolation, and tribulations as they may be needed for your salvation, and to complete in the soul and perfection to which I have [*Io l'ho eletti*] elected it" (*D* 99, *DA* 212. Almost the self-same words appear in *L* 124 [64], *S* 61). God not only predestines some to eternal life, but He predestines them to that precise degree of glory He has chosen them to have. And this out of mercy, not as something due (*D* 13, 21, 41, *DA* 62, 73-4, 110-14).

Catherine, moreover, tells us precisely in what the happiness of eternal life consists, the happiness to which God has called His elect. M. Canet wholly ignored the rôle of the intellect in Catherine's teaching, yet the primacy of intellect over will is to be seen almost everywhere in her writings. It is beautifully and graphically portrayed in one chapter in the *Dialogue*, and there she says unequivocally: "The intellect is the most noble part of the soul" (*D* 51, *DA* 130). Consequently, it should occasion no surprise when she writes, the Eternal Father addressing her:

After the soul has left the weight of the body, her will is full, for desiring to see Me, she sees Me, in which vision is your beatitude; and seeing she knows, and knowing she loves, and loving she tastes Me, Supreme and Eternal Good, and in

tasting Me she satisfies and fulfils her will, that is, the desire she has to see and know Me . . . So thou seest that *My servants are blessed principally in seeing and knowing Me*, which vision and knowledge fills their will to the full, to have what the will desired, and so it is satisfied" (D 45, DA 125).

This, of course, is but an echo of the teaching of St. Thomas (cf. *Summa*, I-II, q. 3, a. 4; q. 5, a. 4). The intellectualism of the Angelic Doctor is a stumbling block to many. Not so for St. Catherine. She understood well the profound significance of what St. Thomas meant when he wrote: "The love of God is better than the knowledge of God; but, on the contrary, the knowledge of corporeal things is better than the love thereof. Absolutely, however, the intellect is nobler than the will" (*Summa*, I, q. 82, a. 3). Her teaching is but an amorous paraphrase of the doctrine of St. Thomas. She put it into action, she lived it, even as St. Thomas did before her. He was not all intellect, as so many falsely assume; nor was she all will, as M. Canet erroneously supposes. She was a reformer; throughout her life and in her writings she was ever intent upon the reformation of the Church in head and members. Will has an important rôle, and she developed it to the full. But she also knew and taught that God, in His mercy, having chosen those "whom he foreknew," predestined and moved them efficaciously to eternal life, the happiness of which consists in the perfection of that faculty which is the most noble in man.

And Catherine well understood also, and taught, God's reprobation of the wicked, not antecedently, but "through justice for their sins" (cf. *supra*, p. 14). We may wonder if M. Canet is really serious in his attempt to have Catherine deny reprobation. Had he been more accurate in making his summary (cf. *supra*, p. 10) of the text he placed in a footnote, viz., "They [*the wicked*] await no other judgment, but they themselves with their consciences are the judges, and as despairing ones they arrive at eternal damnation. With hatred they reach out for hell at the moment of death, and before they have it they, together with their lord, the devil, lay hold of hell for their reward" (D 43, DA 120). And had he then read a little beyond the text selected, he would have discovered the following: "Thus neither the one [*the wicked*] nor the other [*the just*] waits to be judged, but they depart this life and receive every one their place, as I have told thee. They taste it and possess it before they depart from the body, at the moment of death—the damned with hatred and with despair, and the perfect with love, and with the light of faith, and with hope of the Blood. And the imperfect arrive at the place of Purgatory, with mercy and the same faith" (D 43, DA 121). Can this be the reason why M. Canet thinks that Catherine denied all predestination? The just, without waiting for judgment, simply take possession of what they have won by means of their "sovereign liberty"!

However that may be, the same scene of souls *in extremis* is portrayed in

more vivid detail in *D* 131-2, *DA* 256-73. There, as in the passages given above, it is a question of souls before God summoned them to judgment. Immediately after death, however, Catherine paints quite a different picture: "I with justice send them [the wicked] with their cruel servant, sensuality, together with their cruel lord, the devil, to whom they became servants by means of their sensuality, so that together they may be punished and tormented, as together they have offended Me. Tormented, I say, by My ministers, the devils, whom My judgment has appointed to torment those who have done evil" (*D* 37, *DA* 194). For Catherine, the mercy of God was indeed above all His works (cf. *D* 30, *DA* 90-1), but in her eyes mercy did not efface God's justice—mercy restrained justice (*D* 128). Even "in the darkness of hell Thy mercy shines, by not giving to the damned such pains as they deserve" (*D* 30, *DA* 91).

But M. Canet saw nothing of the justice of God in the teachings of Catherine. So intent was he on maintaining "sovereign liberty" as the core of her teaching that the very reason for justice was denied. Her teaching on original sin was, therefore, of the utmost importance. Under the influence of the metaphor of the nurse taking the bitter medicine instead of her little one, M. Canet selected his text (it appears in italics in the last paragraph of the quotation below). Then he called for an interpolation (of the phrase in quotation marks), but, finding this not altogether necessary, he identifies the fault with the mark of original sin, and the feat is accomplished, for original sin was the sin of Adam—a personal fault, the mark only having been transmitted. Catherine's position, therefore, was akin to that of Abelard. But it was a little more difficult to establish the contacts by which Abelard might have influenced Catherine. That, too, was accomplished—almost. Roland Bandinelli, who was born in Siena and who became Alexander III, made a profession of faith which, in respect to the *fomes peccati*, stood midway between the teaching of Abelard and St. Thomas. Now the mother of Stefano Macconi, who was one of Catherine's secretaries, belonged to the Bandinelli family. Thus, Catherine made the hurdle.

Following is the vital part of the text of Catherine's teaching on original sin, the italics that appear in the last paragraph of the text being the excerpt upon which M. Canet based his interpretation:

Wherefore I gave My Word, My Only-begotten Son, because the whole mass of the human race was corrupted through the sin (*peccato*) of the first man Adam. Wherefore, all of you vessels made of this mass, were corrupted and not disposed to have eternal life. For this reason, therefore, I, with My dignity, joined Myself to the baseness of your humanity, in order to remedy the corruption and death of the human race and to restore it to grace which was lost by sin (*peccato*); for I was incapable of suffering, and yet, on account of the fault (*colpa*), My divine justice demanded satisfaction. But man was not sufficient to satisfy it, for even if he had been able to satisfy in some things, he could only have satisfied for

himself and not for other rational creatures. Besides, for this fault [*colpa*], man could satisfy neither for himself nor for others, because his fault [*colpa*] was committed against Me, Who am the Infinite Good. Wishing, however, to restore man who was enfeebled and could not satisfy for the above reason, and because he was enfeebled, I sent My Word, My own Son, clothed in your own very nature, the corrupted clay of Adam, in order that He might endure suffering in that self-same nature that had offended, and, by suffering in His Body even to the opprobrious death of the cross, He placated My wrath.

And thus I satisfied My justice and fulfilled My divine mercy, which mercy willed to satisfy for the fault [*colpa*] of man and dispose him for the good for which I had created him. This human nature, joined with the divine nature, was sufficient to satisfy for the whole human race, not only on account of the pain which it sustained in its finite nature, that is, in the mass of Adam, but by virtue of the Eternal Deity, a nature, divine, infinite . . .

Thus human nature was sufficient to satisfy for the fault [*colpa*], but only by virtue of the divine nature. In this way was destroyed the stain [*marcia*] of the sin [*peccato*] of Adam, and only the mark [*segno*] remained, that is, the inclination to sin [*peccato*] and all corporal defects, like the cicatrice [*marginè*] which remains when a man is healed of a wound.

The coming of the great Physician, My Only-begotten Son, cured this infirmity—the fault [*colpa*] of Adam which caused mortal stain [*marcia*—by drinking the bitter medicine which man was not able to drink because he was much enfeebled. He did this as the nurse who drinks the medicine in place of the little one, because she is large and strong and the little one is not able to endure the bitterness. He was the nurse, enduring with the greatness and strength of the Deity united with your nature the bitter medicine of the painful death of the cross, to heal and to give life to you, little ones enfeebled by the fault [*colpa*].

Only the mark [segno] remained of original sin [peccato originale], which sin [peccato] was contracted from your father and mother when you were conceived by them. This mark [segno] is removed from the soul, "but not altogether," in holy Baptism, which Baptism has the power and gives the life of grace in virtue of the glorious and precious Blood. As soon as the soul has received holy Baptism, original sin [peccato originale] is taken away from it and grace is infused. And the inclination to sin [peccato], which is the cicatrice [marginè] that remains from original sin [peccato originale], as said above, grows weaker and the soul can restrain it if she wishes.

Thus the vessel of the soul is disposed to receive and increase grace in herself, more or less, according as it pleases her to dispose herself willingly, . . . (D 14, DA 67-9).

Scholarship should be tolerant of opposing views in the interest of truth, and scholars who are seeking after truth should be patient in dealing with opponents. But there is such a thing as righteous indignation. And when methods of this sort are employed, under the influence of an anti-intellectualism that permits voluntarism to run riot, it is time to cry out and to protest in the name of scholarship. Here we have in this book the profound erudition of an historian who sees in sanctity but a human thing.

He is intent on driving a wedge between Catherine and the Dominican family to which she belonged. Failing in his efforts over the years and wishing to renew the attack, but being unable to find reinforcements in his own realm, he turns to an ally for aid and comfort. An attack is made in a new sector, but the tactics are the same: drive a wedge between Catherine and her Dominican brethren, isolate her from the Thomistic tradition. For what purpose? To destroy her? Not at all. It is far more subtle than that.

The point to be noted here, however, is rather simple. M. Canet has failed to storm what he believes to be the central citadel of Catherine's position and upon which so much depends, i. e., "sovereign liberty" and freedom in its exercise quite independent of God but for the fact that it was given to man. In the process of feeling out the strength of the attack, it has developed that there are certain specific, distinctive, and universally recognized characteristics of Thomism in Catherine's armory: primacy of the intellect over will; vision of God as the principal happiness of the blessed; predetermination or premotion of the will in every least thing; and a moving of the will by God that *can be and is* resisted by man, and also a motion that *can be but is not in fact* resisted—a distinction that came later to be called, respectively, sufficient grace and efficacious grace.

This "simple child," therefore, according to M. Fawtier, learned what she knew "by word of mouth, and not by reading" (p. 64). She was a complete failure in the human sphere (p. 236)—a pitiful tool of scheming politicians, papal and civil—she had nothing to offer a world in chaos save her prayers, her moral exhortation, and the example of her life. So be it! And no one can deny the frightful consequences to the Church and to the world because neither gave heed to "the foolish things of the world" that God had "chosen to put to shame the wise, and the weak things of the world" that God had "chosen to put to shame the strong."

This "simple child," according to M. Canet, had in her no such thing as the Thomistic invention of "infused knowledge." She directed her director and commanded him as well as her disciples; but she was influenced by family connections and by two of her secretaries for the "pure Christianity" she taught. And yet, "there is not" in her "one word, I say one single word, that betrays a specific Thomistic influence" (cf. *supra*, p. 7). Nevertheless, she gives evidence in her writings of four distinctive doctrines that characterize the school of St. Thomas. It would appear, therefore, that this "simple child" stands as a rather substantial witness to the authentic doctrine of St. Thomas. She died one hundred years after the Angelic Doctor and two hundred years before the great controversies on grace. She is a vital link in the chain that binds the Commentators of St. Thomas to their great master. The attack on Catherine, therefore—that is the significance of this book for all Thomists in general and for Dominicans in particular. And it appears to have even wider significance in view of certain

trends in theology. But that must await a fuller examination of the whole view of Catherine's doctrine as propounded by M. Canet.

It should be remarked here, however, that, in spite of the severe criticism to which the fruits of M. Canet's labors have been subjected, his labors are not without merit or value. The author may have been too busily engaged with the symbolic and the metaphorical to see the essential design and structure of Catherine's edifice—too busy gathering posies—but after all flowers do add to the beauty of a creation, if a creation it proves to be. And M. Canet has thoroughly explored and exhausted the field—ancient, medieval, and modern; pagan as well as Christian. But it still remains for a *théologien de métier* to determine what use Catherine made of the flowers in ornamenting her edifice. The book is superbly printed, and on good paper. Of course, it bears no *imprimatur*.

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An Introduction to the History of Sociology. Edited by HARRY ELMER BARNES. Chicago: University of Chicago Press, 1948. Pp. 960, with index. \$10.00.

Historical Sociology: Its Origins and Development; Theories of Social Evolution from Cave Life to Atomic Bombing. By HARRY ELMER BARNES. New York: Philosophical Library, 1948. Pp. 186, with index. \$3.00.

After some years of undeniable prolificacy in the fields of history and sociology, Harry Elmer Barnes announces in these volumes that his labors in the history of social theory are at an end. In this branch alone he has authored or edited a dozen works, including these last, which are related closely to two done in collaboration with Professor Howard Becker, *Social Thought from Lore to Science* (1938) and *Contemporary Social Theory* (1940). Apparently this fertile ground is being relinquished in order that Barnes may concentrate his efforts upon the preparation of "a systematic work on the actual history of human society." He may well view this in anticipation as the proper crown for his ambitions. These have never been slight.

The positive, oracular tone characteristic of Barnes' previous writing is in these works as well. No blush in the preface to the *History of Sociology* accompanies the assertion that this is the "definitive summation and appraisal" of systematic sociology (p. x); no hesitancy is evident in the pronouncements with which, on allegedly scientific grounds, Barnes disposes of the whole trend of human history. The device which analysts of

propaganda call "the impression of universality" is used, consciously or unconsciously, to support what are obviously only the personal opinions of the author; this may be a trap for the unwary, and experienced scholars in the relevant fields will surely find it annoying, to say the least. This is particularly so when the character of the opinions is taken into account.

Barnes is sure that all who know the facts believe with him in the omnipotence of science—his model is "the resolute courage of men like the late H. G. Wells who saw that scientific and mechanical marvels can bring untold benefits to mankind if we will but learn how to use them for the advantage of the race and to face social problems with the clarity and directness of science" (*Historical Sociology*, p. 169)—yet the conviction grows with reading that his notions really belong to a past age, a period in which it was somehow possible to accept uncritically theories of social evolution, progress, and cultural lag.

A charge of anachronism cannot be leveled lightly against one so determined to resist what has been castigated as the contemporary "failure of nerve." The burden of this review, therefore, must be to show the basic defects in the concept of scientific sociology which Barnes has utilized in preparing the volumes under consideration. To the reviewer, this concept seems more akin to the ideas of Auguste Comte—who coined the word and is usually credited with founding the discipline of "sociology" a little more than a century ago—than to the definitions of the field advanced by leading theorists of the present generation of American sociologists. The latter are varied enough, as sociologists themselves know and others are fond of reminding them, but there has been at least a tendency toward convergence upon several principles of method which Barnes seems not to have noticed. These principles and their implications for further theoretical development may be dealt with below, in so far as they are within the range of interests of readers of a philosophical journal.

* * * * *

First it is in place to note briefly the plan of these books and to estimate their usefulness. *An Introduction to the History of Sociology* is a collaborative work "presented as a comprehensive summary and critical appraisal of the growth of sociological thought from the ancient Near East to our own day, with the main emphasis on the systematic sociologists from Comte to Sorokin" (p. vii). All but the first two of the forty-seven chapters treat individual theorists. Part I summarizes the pre-Comtian development; Part II treats as "pioneers of sociology" Auguste Comte, Herbert Spencer, Lewis Henry Morgan, William Graham Sumner, Lester Frank Ward, and Ludwig Gumplowicz; other divisions of the book group the theorists regionally as Germanic, non-Germanic continental European, English, and American. Twenty chapters, including all in Parts I and II

except the one on Morgan, are the work of the editor; the others were written by twenty-five collaborators.

It is manifestly impossible for a single reviewer to evaluate satisfactorily such a wide range of individual contributions. In general, the chapters are expository in character with critical content varying considerably from one to another. Among those which are most competently done, in the opinion of the reviewer, are those by Rudolf Heberle on Georg Simmel and Ferdinand Tönnies, J. Milton Yinger on Leopold von Wiese, N. S. Timasheff on Maksim Kovalevsky, and Emile Benoit-Smullyan on Émile Durkheim. In these and other chapters students may obtain relatively concise outlines of the life, works, method, theory, and sometimes the political orientation of each of the sociologists included.

That the editor's announced objective has not been attained is due, on the one hand, to his own historical stereotypes and blind spots, and, on the other, to his plan of procedure. The first deficiency is glaring in the chapters written by Barnes himself, especially in the first two where he purports to summarize all social thought before Comte. There Plato and Aristotle are confidently consigned to virtual irrelevance since their analyses of social phenomena have been "surpassed" by Comte, Quetelet, Spencer, and Ward (p. 6); the Christian Fathers are alleged to have equated Seneca's "golden age" with the Garden of Eden, thus reinforcing "the already extremely retrospective character of Christian social philosophy, which rendered impossible any dynamic conception of human progress" (p. 13); Machiavelli is held to have "advanced beyond Plato and Aristotle in separating ethics from politics" and in making "one of the most acute" early modern analyses of human nature based frankly upon "the premise of man's self-interest and the insatiability of human desire" (pp. 22-23). No purpose would be served in continuing what could become an extended catalogue of similar personal valuations.

Perhaps the most obvious fault in editorial planning is the vagueness of the principle on which theorists were selected for inclusion. The scope of the work was not limited to sociologists who treated the field as an empirical science, and indeed this would have been an impossible limitation, given the character of much sociological writings. But once social philosophers are admitted for inclusion in a work of this kind, the problem of selectivity becomes very difficult. Hence, to select only a few examples, there are chapters on Benjamin Kidd and J. H. W. Stuckenberg but not on Frederic Le Play or Karl Marx. It would be possible, too, to question inclusions and omissions among contemporary sociologists.

More important, from the point of view of the over-all purpose of the book, is the failure to show any genuine development of sociology as a social science. Properly, this is not a history of sociology at all but a collection of essays on men who in the course of that history undertook to

develop more or less elaborate theoretical systems dealing with social phenomena. One who had to rely upon this book for his knowledge would conclude that sociologists had gone their own individual ways, putting all sorts of queer notions into circulation, but failing to develop a common body of knowledge.

To some extent, it must be admitted, such a conclusion would be justified. Unlike most comparable figures in other scientific fields, the leading sociologists of the first few generations remained in relative isolation from one another. While each had his followers or students, relatively little theoretical continuity can be discerned from one generation to the next. It is a fair guess that most present-day sociologists do not read Comte; if they do read his works, or those of Spencer or Ward, the fact is not evident from their writings. This is not a great loss, since the theoretical structures of these pioneers were in a large part built upon erroneous philosophical foundations. Indeed, the reader of these accounts of individual system-builders will gain, in a sense not intended by Barnes, "a far wider and more penetrating understanding of the problems of the last century" (p. x) by observing the confusion of minds of those who aspired to be the new social guides.

It is apparent, too, that a large proportion of these systems were in one sense or another designs for social reform rather than truly speculative scientific constructions at either empirical or philosophical levels. Comte himself thought of sociology as the governing science of the future, "positive" society which he had postulated in his famous "law of the three stages"; for Spencer, sociology formulated the applications of the evolutionary principle which dictated laissez-faire in the social sphere; Ward's well-known concept of "telesis," foreshadowing some recent ideas of social planning, indicated the bent of his systematic effort. The matter incorporated into the works of the various sociologists treated in this volume is extraordinarily varied and brings to mind Giddings' description of the field as "the science of organized smatters." "It is not likely that there will be many more attempts to create systems of sociology" (p. x), Barnes predicts, and he may well be right in so far as systems of the type he describes are concerned.

It is more than a suspicion, however, that whether he realizes it or not, Barnes' own sympathies reflect the outdated grandiose conceptions of sociology which he relegates to the past; his declaration that "the chief justification of sociology is the guidance it can furnish to public officials and private citizens relative to building a better social order" (p. xi) reveals a normatively-oriented definition of the field; and this approach is crudely exemplified in the readiness with which personal opinions on recent issues, such as American participation in the First and Second World Wars, are injected into the historical matter without apology or qualification.

In evaluating the significance of theoretical contributions, Barnes is simply uncritical and unreliable, as a few examples will show. Sumner's *Folkways*, for instance, is praised unreservedly: "Of this work it is not inaccurate to say that it is unsurpassed as a sociological achievement by any single volume in any language and that it has made the sociological treatment of usages, manners, customs, mores, and morals essentially a completed task" (p. 157). In view of the general agreement upon the illustrative (as opposed to demonstrative) character of the work, and the criticisms of the theory of mores by other sociologists as well as moralists—none of which are mentioned in the text—this statement is nothing short of naive. Similarly, Ward's significance is attributed mainly to his statement of the "doctrine of the superiority of the conscious to the unconscious control of the social process" (p. 176), which doctrine is alleged to be "perhaps the most important single contribution of sociology to human thought" (p. 177). Gumpłowicz is handled much more diffidently, but the theory that political origins may be reduced to force is said to have "gained such general acceptance among sociologists that it may almost be considered as the sociological theory of the origin of the state" (p. 195). The word "almost" presumably excepts such an outstanding political sociologist as Professor MacIver, who has but recently described this Hobbesian view as having "completely lost hold" (*The Web of Government*, p. 19). Barnes' notions would be inexplicable were he not so clearly an adherent of a nineteenth-century brand of evolutionism. He is apparently sympathetic with Leslie A. White's attempt to rehabilitate the ideas of Lewis Henry Morgan; according to White, Morgan's "thesis of an evolutionary development of culture, repudiated or ignored by so many today, is the most basic concept of social science" (p. 151).

The trends in sociological scholarship which Barnes does not reveal have been towards a much more modest definition of sociology as a positive science and toward a recognition of its limitations in respect to other fields which supply the basis for social policy, especially social philosophy. In part, these trends have been both the product and the cause of the high degree of specialization which now characterizes sociology as well as other academic fields, a specialization which is sometimes carried to exaggerated lengths. Barnes recognizes this phenomenon in a surmise that "sociological writing from this time onward promises to be mainly specialized forms of social theory" (p. x), but he seems not to appreciate its implications for the problems of definition and theoretical development. Is it possible to have "specialized forms of social theory" without some basic conceptual system for the science of sociology as a whole? Can scientific research even be attempted without an adequately defined frame of reference, which in turn implies the main outline of a theoretical system?

The sociological systems of the past were undoubtedly far too preten-

tious, as this *History of Sociology* reveals, but the discovery of these pretensions should not lead to the conclusion that systems as such are unnecessary or impossible. Outstanding theorists in contemporary sociological circles—such as Talcott Parsons, R. M. MacIver, Florian Znaniecki, or others—have circumscribed the field more carefully and constructed their theoretical systems accordingly. Their kind of “system” is under-represented in this volume, and the arrangement of the materials prevents a grasp of the reasons for its appearance and its significance.

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Historical Sociology illustrates in a more specific way the same limitations of the author. The literature of the field has been sampled extensively, but the historical presentation is largely a compilation of materials within a framework of personal opinion. Begun as a chapter-length survey, the account was expanded to become “a comprehensive introduction” (p. ix). As such, it is still sketchy in character and provides at best a kind of skeleton outline from which a student may obtain the names of thinkers and movements whom he may wish to investigate on his own.

Little agreement upon the meaning of “historical sociology” would be found among sociologists. As the sub-title indicates, Barnes uses the term to signify the study of “social evolution.” His definition of the field is so broad as to appear academically imperialistic:

Historical sociology seeks, in the first place, to account for the origins of associated life among human beings, here relying mainly upon data from anthropogeography, biology, and psychology. It endeavors to trace the origins and development of all forms of social organization and structures. It deals with the rise and evolution of all social institutions. It treats of the beginnings, domination and decline of those social attitudes and philosophies which have affected social activities in various stages of history. It examines the question of the stages in the evolution of social types and structures. It tries to discover and formulate the laws of social development, both with respect to broad stages of social evolution and with regard to particular periods and institutions. When it cannot discover laws of social evolution, it states the trends which are evident therein. It points out the historical basis of social maladjustments and social problems, laying special stress upon cultural lag or institutional maladjustment in our age. It takes up the problem of the elucidation and evaluation of the theory of social progress. (pp. 3-4)

Passing over the problem of finding in this statement a precise specification of the formal object of historical sociology, some other conspicuous shortcomings of this brief work deserve mention. Among the precursors of this study, which is traced back to primitive myth-makers and to the Greek Sophists, one notes especially the omission of St. Augustine and the French traditionalists of the nineteenth century; the German romanticists also appear somewhat neglected. The treatment of Christianity is almost wholly objectionable, since Barnes is not content to prescind from super-

natural considerations but seems constrained, in the name of "realism," to deny their possibility (pp. 8, 33, 39, 54, 112, 142, 155-56, 162, 169). One of the complaints brought against Christianity is the fact that it is nearly two thousand years old (p. 147); perhaps this serves as well as any comment to indicate the quality of the author's thinking on the problem of social change.

Cultural lag—"the gulf between machines and institutions" (p. 161)—is posited as the basic cause of modern social problems disclosed by the study of historical sociology. This is a facile phrase which has been employed by sociologists for about twenty-five years. Used in a limited, purely descriptive sense, to indicate the evident disparity between high material achievement and prevalent social disorganization, it is legitimate enough. Causal implications have frequently been intended, however, and these are found in Barnes' use of the concept. It is assumed that technical ideas and social norms have essentially the same attributes, though they refer to different objects. Throughout history, it has been easier to change technical ideas than social norms. The "lag" in the rate of change of the latter, it is held, explains the existence of social problems. It is apparent that such an explanation assumes, not only the identical conceptual character of technical and social norms, but also a relativistic and evolutionary conception of morality. Change, moreover, appears to be valued as an end in itself. That social change does not occur fast enough is explained by Barnes on the grounds of the crystallization of the bourgeois order and its defense by vested interests, the slow pace of secularization in the social realm, and "the disinclination of simians to indulge in abstractions" (p. 160). This last—"that, as simians, men are interested in, and adept at material things and the alterations thereof, while they are notoriously indifferent to, and incompetent at, social thought and social planning" (pp. 160-61)—comes from a man who scoffs at the doctrine of original sin!

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This review has been devoted mainly to what is sometimes called "destructive criticism." The necessity for this approach is regrettable; the task it imposes can by no means be considered completed. It is unfortunate that so prolific an historian of the social sciences as Barnes should be so obstinately biased and so lacking in critical perspective and interpretive ability. Lest his work represent the plight of sociology as much worse than it is, however, it seems desirable to append one or two comments on current trends in the field.

The first of these concerns the tendency, already noted, toward a more precise delimitation of the field as a positive science. This has come about partly as a result of specialization, partly as a result of verbal wars of attrition between theoretical schools which have left a certain residue of fact. Philosophical training might have hastened the development,

but few sociologists have had anything like adequate preparation in this respect, and few philosophers have taken the trouble to investigate the potential contributions of sociology. The scientific status of the field is still debated, although, naturally, much of the debate is centered upon the proper definition of science. The relations between this narrow specialty and social philosophy or social policy are variously formulated, but distinctions are at least being made, and this is a definite gain.

A second trend is toward the elimination of the numerous "determinisms" with which sociology has been afflicted. Were there space, it might be interesting to cite recent critical appraisals of the so-called "ecological" approach which illustrate how, after a period of relatively unchallenged popularity in which it stimulates a great deal of research, a theoretical formulation not too well thought out in the beginning is subjected to examination and refinement. In this particular case, the significance of the cultural context of social organization for community structure has been re-asserted and the physical and economic factors properly subordinated. "Biological," "physical," "geographic," "psychological," and all sorts of other approaches may still be found, but they have probably diminished in influence as the relational character of social reality has become more clearly apparent and as the influence of behaviorism has waned. Such methodological works as Znaniecki's *The Method of Sociology* (1934), Parson's *The Structure of Social Action* (1937), MacIver's *Social Causation* (1942), and Sorokin's *Sociocultural Causality, Space, Time* (1943), have helped to clear the ground and to provide more satisfactory conceptual schemes. These have focused attention, on the one hand, upon the analysis of the social act as the most elementary datum for the sociologist, thus removing the discussion over determinism out of sociology to other realms where it properly belongs; and, on the other, upon the patterning of social actions in complexes and institutions which constitute social structures and provide the framework for functional analysis. This "structural-functional" conception of social systems, as Parsons calls it, is replacing the once-popular conception of society as "process" with its deterministic connotations.

On the whole, these trends appear to be in a direction which will lead to fruitful investigations and which will avoid the philosophical biases so evident in system-building of the past. This review cannot be concluded without the expression of a hope that more Catholics with adequate philosophical preparation will enter sociology. They are urgently needed, not only as teachers in Catholic institutions, but as scholars who will both assist in the orderly theoretical development of the science and work with philosophers and theologians to advance the integration of social theory as a whole.

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BRIEF NOTICES

Der Begriff der Geschichte als Wissenschaft. By RENÉ VOGGENSPERGER.
Fribourg, Switzerland: Paulusverlag, 1948. Pp. 130.

In many respects, the modern mind is tilted toward Plato more than toward Aristotle. Though it is dangerous to press this point into its details, lest similarities become strained and history over-simplified, there is a way in which Plato represents that interest in the past which has caught fire in modern scholarship. It is a belief that, by probing back through the past, the present can be explained, the laws of things can be understood, and the secrets can be wrenched from the universe about its origins. Much more than Aristotle, Plato had a genetic approach to cosmology, and when the Renaissance ushered in the distinctively modern era it returned to Plato rather than to Aristotle.

From this point, Voggensperger briefly traces out the modern ardor in regard to history, showing how Comte, Hegel, German historicism, and also the pragmatic view of history as *magister vitae* make the project, described in his title, a very timely enterprise. Though Dilthey is treated, the author might have given an even more pertinent aspect to his study had he mentioned the problems of history in Jaspers and Heidegger. Communism likewise leans heavily upon history for support of its dialectical philosophy, and American naturalism, Voggensperger might have said, is at pains to appeal to the past in order to define philosophy and to locate its present opportunities.

But the author has done more than time his topic, the concept of history as a science. He has said a great number of interesting and important things about the subject and has shown a commendable interest in uniting what is good in Aristotle with whatever truth an Aristotelian spirit can discover in modern philosophies. It is well known that Aristotle did not value history very highly in the world of knowledge, even ranking it below poetry which he felt rose above historical singularities to a kind of universal insight. It is a bold project then to ask where history fits into to the realistic Aristotelian definition of science. The author, appealing to authority and using his own arguments, concludes to the following definition of history: "History is a science which studies, in their many-sided individuality and according to their causal and teleological coordination, socially relevant events and circumstances produced by human wills" (p. 50).

At first sight, this definition of what a science is taken to be today does not square at all with Aristotle's idea of what a science ought to be. A certain knowledge in terms of causes, which is the Aristotelian account of

genuine science, must be evident in character, causal in method, necessary and universal. But history is a study of individuals. It involves acts not necessary but flowing from human freedom. Historical knowledge does not attain the essences of things. This, then, is the central problem of the author: To fit in the modern definition of science as a *fait accompli* with the rigor of Aristotle's definition.

Voggensperger is impressed with Maritain's attempt to show the empirical sciences in terms of so-called perinoetic intellection. It will be remembered that Maritain argues that such empirical disciplines gravitate to areas like mathematics or philosophy which are more truly scientific. There is something of this same thought which remains in Voggensperger's approach to history, for his final solution of the problem is that Aristotle's account of science, which is after all what realism commands, must be retained at all costs. But Voggensperger argues that the modern idea of science is not altogether alien to Aristotle's. History, he concludes, is a *scientia in fieri*. It is condemned forever to aim at a truly scientific character and can be scientific only to the extent that it participates in what Aristotle required of *episteme*. But this actual elevation into a truly scientific status history as knowledge can never claim. Its actual achievement will always fall short of its ambition. As a science, it will always be *in fieri*. This is a challenging idea, capable of extension, if it is true, to much wider horizons in the modern world.

But Aristotle also said that what is impossible to be is also impossible to become. It may be wondered whether this metaphysical maxim of Aristotle does not rule out Voggensperger's laudable attempt to extend his doctrine of the nature of science. Taken literally, the principle would mean that since the science of history is impossible to be, it could never even enjoy the humbler estate of a *scientia in fieri*.

Reconstruction in Philosophy. By JOHN DEWEY. Boston: The Beacon Press, 1948. Pp. 271, with index. \$2.75.

This is one of Dewey's well known books and summarizes fairly well everything of importance that he has written. The present edition contains a thirty-seven page Introduction entitled "Reconstruction as Seen Twenty-five Years Later." Here Dewey renews his plea that social and cultural progress has lagged behind the empirical sciences and ought to be brought up to date under the high-octane power of scientific method. This of course is the meaning which Dewey attaches to "reconstruction."

A detailed doctrinal criticism of Dewey would only arouse the curious name-calling by which he and his fellow naturalists choose to dismiss the more traditional philosophies which attack them. Twenty-five years of such criticism have not softened this panoply of their dogma, but twenty-five

more years, even without criticism, are likely to do so. History is sitting in judgment upon them, and much more than their speculative critics, history is stern in its verdicts.

Though Dewey states in his Introduction that the most important discovery of modern science is that all is process, twenty-five years between the first and second editions of this book have not altered his thought. The world which, with Dewey's blessing or without it, has extended the scientific method as he advocates, does not find itself on the turnpike of cultural and social advancement. Indeed, the generation of Americans whose schooling Dewey has either directly influenced by his words or seconded by his spirit is farther than its predecessors from the ideal that Dewey envisions.

For instance, during the recent war the Army found it necessary to institute an orientation program because the truly secular character of secular education had failed to give motives to its graduates which would prompt them to serve their country, work for it, live for it, die for it. The emphasis on the practical in education was noted in the Steelman report to the President which bemoaned the fact that America was failing to produce good theorists in the sciences, men with speculative backgrounds and nurtured imaginations who could compensate for the closure of the European intellectual markets. Dr. O. A. Baker, world famous population expert, has predicted that with present tendencies, our population will drop to 100,000,000 within a century. This serious threat to our national security and to the freshness, originality, and other youthful virtues which would wane in a nation top-heavy with old people is a natural result of an amoral outlook upon life which views birth prevention with indifference. Indeed, history is passing judgment on the secular spirit which scientism abets.

What are some of the consequences of applying the scientific method to social and cultural problems? For one thing, the way to discover what Russia would do with the secrets of atomic energy is to give her the bomb and submit the outcome to the pragmatic test. The way to decide whether Communism would be good or bad in this country would be to elect a Communist regime in Washington.

Both of these measures would resist experiment since they could happen once and could never be corrected in their consequences. This brings out the inherent fallacy of extending the scientific method to all knowledge and of judging value only in terms of consequences. Such a procedure cannot handle the things that happen only once, which are the most important things in human affairs. Every man, for instance, has only one life. He cannot judge its significance by its consequences, because the consequences are beyond his power to rectify when life is finished. Every act of man has something irrevocable in it, making a man better or worse after it is over but never leaving him the same. The scientific method works well in proportion as its matter becomes morally indifferent and in proportion as

plurality prevails so that if one guinea pig is killed by experimental medicines another guinea pig can be brought in and the error corrected. In the really important decisions like the meaning of life, the choice of a marriage partner, an oath of office, to mention only a few examples, the pragmatic and instrumental test is of no appreciable use at all. The mind must analyze the situation confronting it as it exists, not comparing it with a preconceived theory or a practical consequence but taking it in itself and as it is. This means that human life is impossible unless we admit that things are intelligible in themselves in greater or less degrees and unless we reject the Dewey myth that things are intelligible only in terms outside of them, namely, their consequences.

The Philosophy of Man. By HENRI RENARD, S.J. Milwaukee: Bruce, 1948. Pp. 248, with indexes. \$2.75.

"*The Philosophy of Man* is a college textbook in rational psychology . . . Its aim is to present a complete synthesis of St. Thomas' philosophical reflections on man" (p. V). The order of topics follows, approximately, that of St. Thomas' "*De Homine*": the preliminary discussion of life is followed immediately by an analysis of the nature of man's soul and of its union with the body. Next the powers of the soul are treated in general followed by a brief discussion of the vegetative powers. A chapter on "*The Problem of Knowledge In General*" prefaces the study of the sense and intellectual cognitive powers. The concluding chapter deals with the sense appetites, the will, the habits; to this is appended an "Epilogue: *The End of Man Is Happiness in God.*" This division is convincingly defended (pp. 3-4). The book is prefaced by an analytical table of contents and has both a subject and an author index.

The rich Thomism of this little work is evident in three ways. First, there is the doctrinal fidelity to the teaching of St. Thomas. On every controverted point Father Renard is unequivocally Thomistic: the intellectual soul is the only substantial form of man (pp. 47-49); the powers of the soul are really distinct from its essence (pp. 54-57); the divine motion of the human will (pp. 192-198), etc. Second, the diversity of the works by Thomas here cited is indicative of the breadth of the author's familiarity with Aquinas: fifteen different works by Thomas are referred to. Third, Father Renard's text is generously interlarded with quotations, translated by himself, from these fifteen works. On a rough average I would estimate about two quotations per page.

A few imperfections mar this splendid work. The book is as stylistically uninviting to student, teacher, or general reader as was the author's *Philosophy of Being*. No recognizable genre of philosophical writing is

found here: neither current chapters, the article structure of Aquinas, nor the thesis form. It is a blur of all three with scholia, corollaries and unnecessary summaries (a writer's unconscious recognition of lack of structural clarity) adding to the confusion. There are two un-Thomistic notes, viz. the Wolffian phrase "rational psychology" (p. V, and p. 4) and the insistence that metaphysics must precede psychology (p. V) because the latter is "the metaphysics of man" (p. 1). Certain conclusions in psychology do pertain to metaphysics. But the science as a whole belongs to the philosophy of nature, since man is a mobile being: therefore it precedes metaphysics. In holding (p. 29) that the soul of an irrational animal is intrinsically dependent upon matter in the order of existence but only extrinsically dependent on matter in the order of operation the basic Thomistic principle *operatio sequitur esse* is forfeited. This surprising position is attributable to initially false definitions of these two kinds of dependence (pp. 28-29). Any need for expressed species in external sense perception is denied, of course; but an unduly abstruse quarrel with Frs. Garrigou-Lagrange, Remer, and Gredt on why they are unnecessary is introduced. On the question whether proper sensibles exist formally in natural things, the author adopts three positions in one paragraph: (1) this is a physical, not a philosophical question; (2) there is considerable evidence for holding that proper sensibles do not exist formally in natural things, and all of this evidence must be granted; (3) it is obvious that proper sensibles do exist formally in natural things, and any other position is counter to realism (p. 104). I presume one takes the last position seriously and lets the others go, or admits the possibility that he has misunderstood the author.

"*The Philosophy of Man* should prepare students to read the works of St. Thomas directly, for it is believed that through a constant and intimate contact with one of the greatest thinkers of all time, many young minds may be brought to contemplate and to love Truth" (p. V). The proximate aim of this book, then, is "to prepare students to read the works of Thomas directly." It succeeds admirably.